HOW TO to build a girder bridge from brass

Garden RAILWAYS®

26 PAGES OF HOW TO!

FEBRUARY 2012

Adventures in outdoor model railroading

Easy weathering

How to create durable effects using chalks

Use chalk to weather structures

HOW TO

- Adapt solar garden lights for your structures
- Make figures from polymer clay
- Blend benchwork into your backyard

How to highlight details

How to replicate aging paint

The crew discusses the weather prior to the day's run. Learn how Alan Olson weathered almost everything in this picture, starting on p. 38

www.GardenRailways.com

$6.95

02

7 22627 46780 5

Vol. 29 • Issue 1

PLUS Visit a compact streetcar line

USA TRAINS

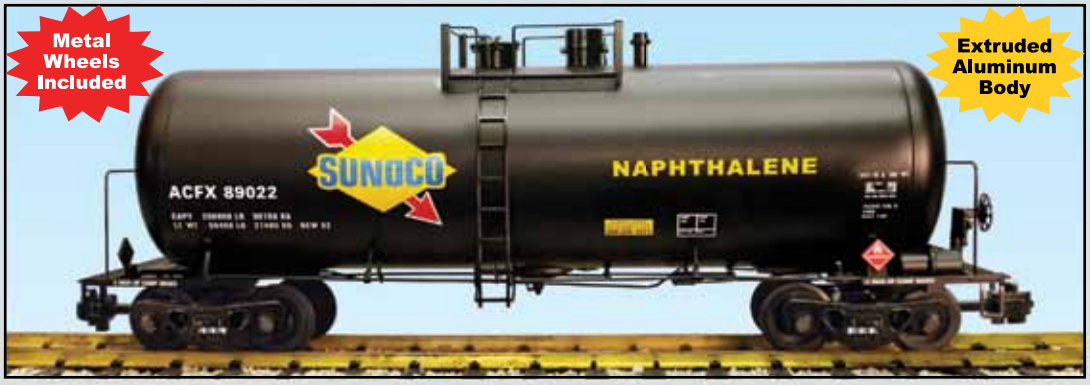
The Ultimate Series

Watch the Video @ LSOL.com/usatrains

42' Modern Tank Cars

1:29 Scale model ★ Extruded aluminium body ★ Opening roof hatches with valve detail ★ Die-cast metal end platforms with "real" metal walkways ★ Multiple roadnumbers ★ Die-cast trucks with spinning wheel journals ★ USA Trains body mount coupler compatable ★ Die-cast metal coupler with special tank car feature ★ Blackened metal wheels ★ Length: 17 3/8"

Visit usatrains.com to view all road names



Opening metal domes with valve detail

Die-cast metal detailed brake system

R15252 UTLX

R15253 GATX

R15254 SHPX

R15255 Sunoco

R15256 Hooker Chemicals

R15257 Engelhard

R15258 Diamond Shamrock

R15259 Airco

R15260 Safety Kleen

R15261 Dupont

R15262 Shell

R15263 Ontario Carbonate Inc.

R15264 ADM

R15265 Procor

R15266 Citco

R15267 Texaco

R15268 Rio Grande

R15269 Southern Pacific

R15270 BNSF

Also Available - Not Shown

R15250 Painted Black - Data Only

R15251 Painted White - Data Only

USA TRAINS • P.O. Box 100 • Malden, MA 02148 • 781-322-6084 • Dealer Inquiries Invited • www.usatrains.com

2-BAY COAL HOPPERS

1/29 SCALE

G 45 mm

41800 - UNDECORATED BLACK (Data Only)

41801 - PENNSYLVANIA RR

41802 - ATSF/SANTA FE

41803 - UNION PACIFIC

41804 - D&RGW/RIO GRANDE

41805 - SOUTHERN

41806 - N&W/NORFOLK & WESTERN

41807 B&O/BALTIMORE & OHIO

With its attention to detail, prototypical accuracy, and superb craftsmanship, the ART41800 2-Bay Coal Hopper series continues the long tradition of excellence and value in the Aristo-Craft Trains product line. This is a must-have item for your railroad!

Not Shown:
ART-41800RA Oxide Red w/Dim Data

FEATURES: Operating AAR-design knuckle couplers • Detailed freight car trucks w/ springs • Removable coal load • Full underframe and air brake system • Brass grab railings • Realistic painting and authentic detailing • Mounting pads for body-mounted couplers • Length: 14 inches/355mm

41808 - GREAT NORTHERN

41809 - BOSTON & MAINE

41810 - CENTRAL OF NEW JERSEY

41811 - C&NW

41812 - NEW YORK CENTRAL

41813- LEHIGH VALLEY

41814 - READING “Anthracite”

41815 - BALTIMORE & OHIO

41816 - NICKEL PLATE ROAD

41817 - DELAWARE & HUDSON

NEW ROADNAMES

41818 - B&O “Large Letters”

41819 - READING “Speed Letters”

41820 - LACKAWANNA

41821 - ERIE RR

41822 - SOO LINE

41823 - MISSOURI PACIFIC

41824 - NORTHERN PACIFIC

41825 - PITTSBURG & SHAWMUT

Come see the video @
LSOL.com/aristocraft

ARISTO-CRAFT TRAINS
698 S. 21st Street, Irvington, NJ 07111-4109
Phone: 973-351-9800 Fax: 973-351-9700
Visit us online at http://www.aristocraft.com

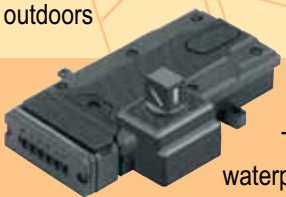
Indoors...outdoors... all around the yard

PIKO America

Bringing you over 375 German-Made G-Scale products

PIKO G-Track is clearly superior!

- Code 332 virgin brass rails
- UV-stabilized HDPE ties
- Made for decades of use outdoors



Truly waterproof switch machine w/add-on lantern and relay contacts

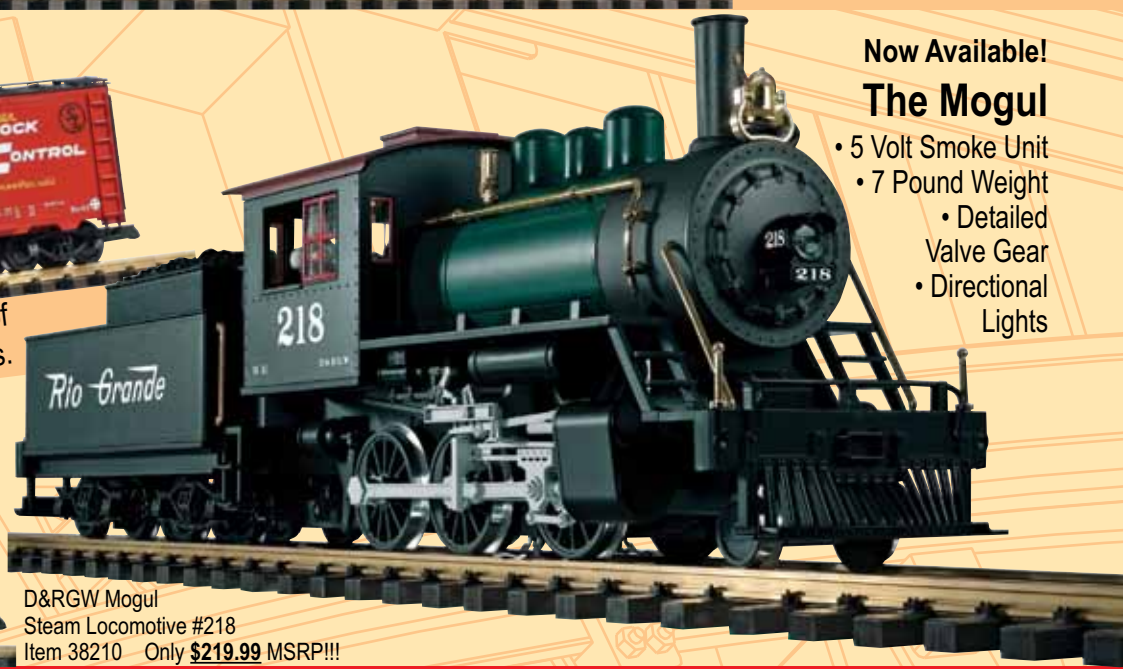
The Famous German BR 194 "Crocodile" Electric Loco
Item 37430
$599.99 MSRP

Now Available!

The Mogul

- 5 Volt Smoke Unit
- 7 Pound Weight
- Detailed Valve Gear
- Directional Lights

Check out our growing line of affordable, attractive locos and cars.



D&RGW Mogul
Steam Locomotive #218
Item 38210 Only **$219.99** MSRP!!!

© 2012 PIKO America. Preproduction images shown.

Get your copy of the big brand-new 2012 PIKO G Catalog! At your retailer or $9 post-paid direct.

PIKO America, Dept. G • 4610 Alvarado Canyon Rd., Suite 5 • San Diego CA 92120

Phone 877-678-4449 or 619-280-2800 • www.piko-america.com

FEATURES

32 The Hydrangea Tram Line
A well-integrated streetcar line in a confined space *by Christine and Lee Collett*

COVER STORY

38 Weathering techniques for garden railways
Part 1: Prototype weathering and using chalks *by Alan Olson*

44 Staff corner: Vance Bass
Son of Frankencar: The dark science of kitbashing *by Vance Bass*

48 Trains, graffiti, and fine art
Weathering models for an art exhibition *by Tim Conlon*

52 Building a metal through-truss bridge
An exercise in soldered-brass construction *by Don Parker*

58 Making characters
Modeling figures from Sculpey oven-hardening clay: Part 1 *by Eric Schade*

62 Kitbashing J.S. Woodcrafts' speeder
A few details and a new paint job transform this vehicle *by Alain Gavard*

HOW TO to build a girder bridge from brass
Garden RAILWAYS
26 PAGES OF HOW TO!
Easy weathering
How to create durable effects using chalks
HOW TO
PLUS Visit a compact streetcar line

COVER PHOTO: ALAN OLSON

- Build a girder bridge 52
- Easy weathering 38
- Adapt solar garden lights 18
- Make figures from polymer clay 58
- Blend benchwork into your backyard 23
- A compact streetcar line 32

DEPARTMENTS

6 From the Editor
Notes from Marc

8 Notes & news
What's new for the garden railroader

14 Letters
Views from our readers

16 Tips & tricks
Protect plants from weed killer, storing paint, and more

18 Garden railway basics
Let there be light: Part 4—Going solar

23 Greening your railway
Blend benchwork into your backyard

28 Plant portraits
Sweet woodruff

65 Miniscaping
Stream- and pond-edging ideas

68 Raising steam
Compound locomotives

70 Online station
A large-scale guide to the Internet

72 Events
Upcoming shows and exhibits

74 Product reviews
Ozark Miniatures caboose kit, Accucraft hopper, and more

90 If I'd only known. . .
The helix vs. scale disparity

On www.GardenRailways.com

ONLINE BONUS

- Simple weathering techniques for rolling stock
- An expanded version of "Trains, graffiti, and fine art"
- Plans for a 1:29-scale grain elevator

www.GardenRailways.com

GARDEN RAILWAYS (ISSN 0747-0622, USPS 713-710) is published bimonthly by Kalmbach Publishing Co., 21027 Crossroads Circle. P.O. Box 1612, Waukesha WI 53187-1612. Periodicals postage paid at Waukesha WI, and additional offices. POSTMASTER: Send address changes to GARDEN RAILWAYS, PO Box 1612, Waukesha WI 53187-1612. Canada Publication Mail Agreement # 40010760

What do I do with all my stuff?

WILLIAM ZUBACK

The topic of this editorial is neither popular nor pleasant, but I think it is one that should be addressed. I recently received a letter from a fellow in his late sixties. He's in good health and has no desire to get out of the hobby. Over the years he has built up a substantial collection of trains, assembled a respectable library of related books and information, and has put together a good workshop.

In looking ahead, he was wondering what's to become of this legacy when he's gone. His family, while supportive, has no active interest in the hobby. He sees much value in the trains, both sentimental and actual, and he would prefer that his collection not be broken up. He has considered donating it, in toto, to a museum. He feels it unfair and unkind to leave the collection for his wife and family to dispose of.

His concerns are real and valid. We garden railroaders are aging and this is an issue that must be faced. Unfortunately, I have no good answers. These thoughts have crossed my mind as well. I have started thinning down my own collection, keeping only the pieces that mean the most to me. However, that still amounts to a lot. Also, selling off one's things piece by piece involves a great deal of time and effort.

The idea of donating everything to a museum, while laudable and attractive, is not very practical. Many museums would be delighted to receive your collection—so they could sell it to generate some cash flow. Even if they did keep it, exhibit space is always at a premium, as is plain old storage space. If you accompanied your gift with an endowment of a couple million for a new wing, that might ensure your collection's safety.

Saddling one's children with the trappings of your hobby, when they have no interest, is also distressing. Around here, we joke that, when we are gone, our children will fight over our possessions—the loser will have to take them.

Something that *can* be done now (since you never know when you'll be departing) is to thoroughly document your collection. We have actually done this and found the process cathartic. My wife Barb and I went through my entire collection and entered it into a simple database. Database fields include the name of the item, when it was made and by whom, what price was paid for it, what its current value is, and much more. There's also a photo of each piece. Barb knows where the database is in my computer, should something happen to me.

While this doesn't exactly solve the problem, it can make the task of disposing of one's stuff far easier for those who are left behind. They will be able to knowledgeably communicate with potential buyers about the products and they'll have a fair idea of what they're worth. This will make loved ones less susceptible to the sharks and bottom feeders (who always seem to surface in times of distress), and give them more confidence when facing the unpleasant task.

Perhaps the most important thing is to have *some* kind of a plan in place. Talk it over with your family and see what you come up with. I'd like to hear from you if you have any good ideas.

And, on that note, I'd like to wish all *Garden Railways* readers and their families a healthy and happy new year!

Garden RAILWAYS®

Editor	Marc Horovitz
Production Editor	Rene Schweitzer
Horticultural Editor	Nancy Norris
Technical Editor	Vance Bass
Contributing Editors	Don Parker, Kevin Strong, Jeff Young
Art Director	LuAnn Williams Belter
Senior Graphic Designer	Alison Mackey
Corporate Circulation Director	Michael Barbee
Assistant Circulation Manager	Kristin Johnson
Circulation Coordinator	Carly Witkowski
Single Copy Sales Director	Jerry Burstein
Production Manager	Helene Tsigistras
Production Coordinator	Annie Guldberg

Advertising
888-558-1544
Fax: 262-796-0126

Group Ad Sales Manager
Scott Bong

Advertising Sales Manager
Dean L. Bennett
E-mail: dbennett@kalmbach.com

Advertising Sales Representative
Todd Schwartz
E-mail: tschwartz@kalmbach.com

Advertising Service Representative
Nanette Hackbarth
E-mail: ads@gardenrailways.com

Selling *Garden Railways* magazine or products in your store
800-558-1544, Press 3
Outside U.S. and Canada: 262-796-8776, ext. 818
Fax: 262-798-6592
E-mail: tss@kalmbach.com
Website: www.Retailers.Kalmbach.com

Customer service inquiries
800-533-6644
Weekdays, 8:30 a.m. to 4:30 p.m. Central time
Outside U.S. and Canada: 262-796-8776, ext. 421
Fax: 262-796-1615
E-mail: customerservice@kalmbach.com
Please include your name, mailing address, and telephone number with any correspondence

Subscriptions and product orders
800-533-6644
Weekdays, 8:30 a.m. to 4:30 p.m. Central time

Editorial inquiries
Marc Horovitz, Editor
Phone: 303-377-7785
E-mail: mhorovitz@gardenrailways.com
PO Box 460222
Denver CO 80246
or
Rene Schweitzer
262-796-8776
Fax: 262-796-1142
E-mail: rschweitzer@kalmbach.com
PO Box 1612
21027 Crossroads Circle
Waukesha WI 53187-1612

Kalmbach Publishing Co.

President	Gerald B. Boettcher
Executive Vice President	Charles R. Croft
Publisher	Terry D. Thompson
Vice President, Advertising	Scott Stollberg
Vice President, Editorial	Kevin P. Keefe
Vice President, Marketing	Daniel R. Lance
Corporate Art Director	Maureen M. Schimmel
Managing Art Director	Michael Soliday

SUBSCRIPTION PRICE: One year (6 issues), $29.95; two years (12 issues), $56.00; three years (18 issues), $80. Canadian: one year, $37.95; two years, $69.95; three years, $99.95. Canadian price includes additional postage and GST, payable in U.S. funds. International: one year, $39.95; two years, $76; three years, $110. Foreign price includes additional postage, payable in U.S. funds. BN #12271 3209 RT. EXPEDITED DELIVERY SERVICE SURCHARGES: Domestic First Class $15.00/yr., Canadian Air $15.00/yr., International Air $35.00/yr.
Copyright © 2010 Kalmbach Publishing Co.; all rights reserved. Material in this publication may not be reproduced in any form without permission. Not responsible for unsolicited materials. Title registered as trademark.
Printed in U.S.A.

KALMBACH PUBLISHING CO.

Please Recycle This Magazine

ACCUCRAFT TRAINS
MUSEUM QUALITY BRASS MODELS

D&RGW T-12 4-6-0

1:20.3 Scale, 45mm Gauge, Brass & Stainless Steel Construction
Production Limited to 30 Units
$2,499.00 Electric, $2,799.00 Live Steam

EBT 2-8-2 #12

1:20.3 Scale, 45mm Gauge, Brass & Stainless Steel Construction
Available in EBT #12 Type Unlettered & EBT #12
$2,999.00 Electric, $3,499.00 Live Steam

BALDWIN 4-4-0 LIVE STEAM

1:20.3 Scale, 45mm Gauge, Brass & Stainless Steel Construction
Available in Black Unlettered, NCNG Grass Valley #1, D&RG #101
The second production batch is limited to 30 units.
$2,399.00 Live Steam

WHITCOMB 45T DIESEL ELECTRIC

1:20.3 Scale, 45mm Gauge
Brass & Stainless Steel Construction
Production Limited to 40 Units
Available in Yellow, Grey, Blue, & Green Color
$995.00 each

ACCUCRAFT COMPANY, 33268 CENTRAL AVE, UNION CITY, CA 94587, USA TEL: (510) 324-3399 , FAX: (510) 324-3366, WWW.ACCUCRAFT.COM

PRODUCTS

Engines & rolling stock

Trainworld, 751 McDonald Ave., Brooklyn NY 11218, will be offering US buyers the gauge 1, 1:29 scale, Class 66 locomotive by Bachmann/Aristo-Craft. The prototype engines were built in America and Canada by General Motors (now EMD) for service in Britain, between October 1997 and September 2005. The model features twin motors, ball bearings on the axles, smoke unit, LED directional lights, wiring for plug and play Revolution receiver and battery power, and more. An 8' minimum diameter curve is required. MSRP: $799. Website: *www.trainworld.com*

Ozark Miniatures Inc., 3461 S 5225 W, Cedar City UT 84720, has released a new kit in their 1:20.3 mini series. The short logging caboose is made from laser-cut wood and detail casting. The freelance kit includes all wood , detail castings, couplers, and steel wheels. Ozark also now carries a line of micro-chain and sprockets, along with miniature motors and drive kits. Website: *www.ozarkminiatures.com*

Bridges & structures

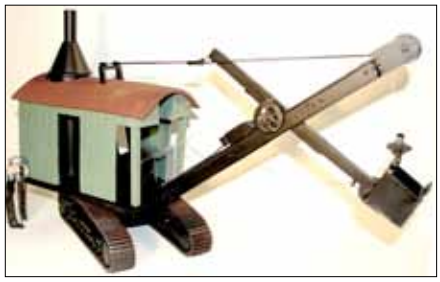
Empire Rail Works (ERW), 1532 East Saint Marks Ct., Salt Lake City UT 84124, will be producing three new steel truss bents in 1:24 scale for use with most large scales on gauge-1 track. Trusses are all-steel construction, prototypically designed from railroad drawings and photographs. Frames are laser cut from 24-gauge steel, precision formed and painted (typically flat black) prior to assembly, and are hand assembled with 4-40 threaded truss rods, bolts, washers, and nuts. Each truss comes with four standard top and bottom mounting shoes. Prices: ST-1, single short truss, 12.5"h x 7.75"w at base, $47.95 ea.; ST-2, single tall truss, 22.25"h x 9.75"w at base, $75.95 ea.; ST-3, double-tall truss (illustrated), 22.25"h x 9.75"w at base, 6.5" on center truss-to-truss, $135.95 ea. All prices + s&h. E-mail: *empirerailworks@gmail.com*; website coming soon.

Smith Pond Junction Railroad Products, 2245 141st Avenue NW, Andover MN 55304, has released their Grand Junction Hotel kit in 1:24 scale. The kit includes over 3,300" of premium Western red cedar lumber, hand selected and deburred, ready to cut to length and assemble, as well as three 18 x 36", full-size layout drawings and instructions. The kit assembles with basic hand tools. Prices: kit, $85.99; plan set, $9.99. Website: *www.spjrr.com*

Colorado Model Structures, 13455 3740 Road, Hotchkiss CO 81419, has Wally's Standard Service, #CMS3019. This is a 1:24-scale building kit, injection molded in high-impact polystyrene. It is based on a 1930s-style brick service station. The kit is available from the company's website, *www.coloradomodel.com*, and at the various large-scale shows that they attend. Price: $24.95.

Precision Products, 3461 S 5225 W, Cedar City UT 84720, has four new western fronts and kits. These lightweight, durable structures can be made on the kitchen table with a ruler and razor knife. The specially formulated plastic gives structures a 10+ year life after being painted. Fronts can be purchased separately. Kits include Saloon, Grand Hotel, Doctor's Office, and General Store. Website: *www.aiii.biz*

Accessories & details



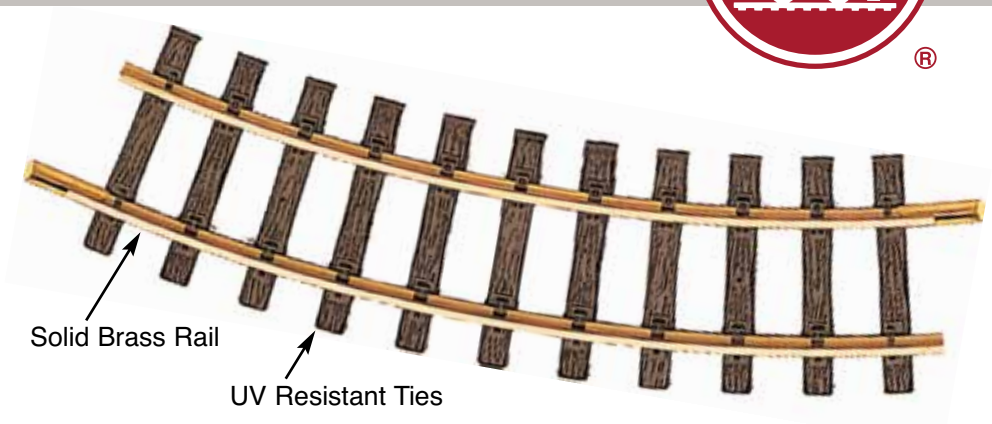
J.S. Woodcrafts, PO Box 621, Lomita CA 90717, has developed a custom steam shovel that is available fully assembled or in kit form. The cab swivels 360° and the arm is fully adjustable for any position desired, until final assembly and gluing. The kits are recommended for intermediate to advanced modelers. The scale is approximately 1:24. Visit the website at *www.jswoodcrafts.net* or send $4 for a CD.

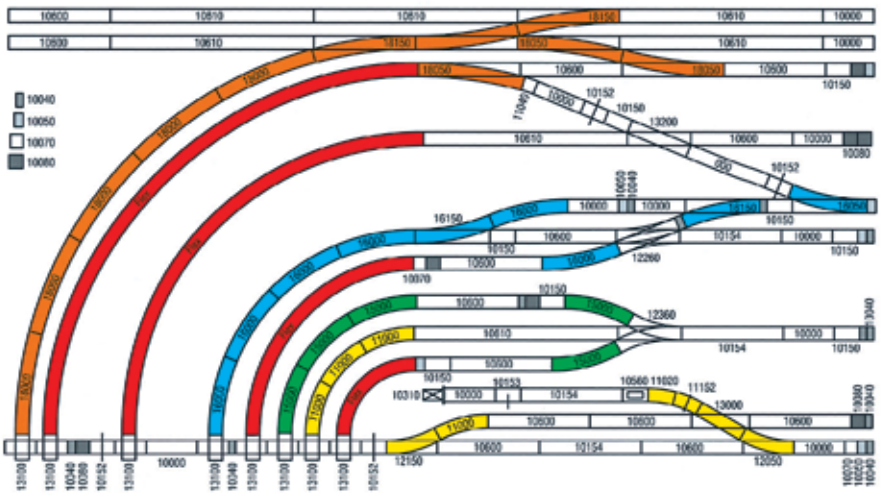
Gary Raymond Quality Large Scale Metal Wheelsets, PO Box 1722-G, Thousand Oaks CA 91358, introduces its M16RL wheelsets, representing 16" wheels in 1:13.6 scale (2' narrow gauge or Mn2) on gauge-1 track. They feature nickel-plated wheels and stainless-steel axles. The M16RL wheelsets are available through local dealers or direct. Website: *www.trainwheels.com*

B.F. Industries, 325 Dryberry Way, Fern Park FL 32730, has a Water Level Detection System (WLDS) for live-steam locomotives. The system is intended to help prevent your boiler from running dry.

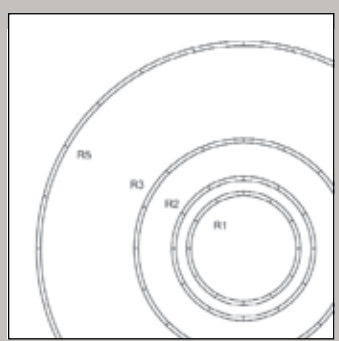
LGB - The Track System for Garden Railroads

LGB track and track accessories work together offering a complete track system for easy and creative track planning. The high-quality, solid brass rail provides reliable operation and is very easy to keep clean.





Layout planning is fun with more then 35 track sections and four different radii. LGB is the track system with every geometry for the large scale enthusiast.



If you are new to garden railroading start with a ready-to-run LGB starter set, which comes complete with a train, oval of track and a power pack. Then expand with LGB's expansion set program for step-by-step expansion of your starter set to an operating layout. From there, your imagination and the LGB track system's endless possibilities.

Walthers Exclusive!
426-72441 Santa Fe Starter Set with Smoke Generator

VISIT YOUR LGB RETAILER AND START BUILDING YOUR DREAM GARDEN RAILROAD.
For the LGB retailer near you call toll-free 800-487-2467 or visit walthers.com.

walthers.com

Walthers is the exclusive distributor in North America for LGB, Märklin and Trix products. ©2011 Märklin, Inc.

EAGLEWINGS IRON CRAFT
"For the hobby you love invest in a durable portable or overhead solid steel layout!"

Many Powder-Coating Colors Available
www.eaglewingsironcraft.com

LGB TRAIN SHOP
102 N. Division
Carterville, IL. 62918
Information: 618-985-6292
Orders: 800-324-0459
Fax: 618-985-6622
E-Mail: Jimkirk@Frontier.com
Complete Price List and Info on Our Web Site:
www.lgbtrainshop.com
www.pizzatrains.com
LGB • ARISTO • USA
LIONEL • MTH • PIKO
POLA • CARRERA RACE SETS
Call for hours and/or for appointment
Call Anytime For Additional Information.

HARTFORD PRODUCTS, INC.
www.hartfordproducts.com
Visit our website to see the new
SP Thielson trucks and the Gilpin 2′ gauge trucks in two scales
6224 Acorn Ridge Trail • Hillsborough, NC 27278
(919) 471-5937 • hartfordproducts@frontier.com
Visa - MasterCard

Complete information can be found on the company's website: *www.wldssystem.weebly.com* Email: *bfinduswlds@gmail.com*

Stoneworks, PO Box 190, Shell Knob MO 65747, has a new Freight/Baggage Wagon kit (with headboard) in 1:24 scale. The kit is laser cut from 1/16" styrene. Wheels are made of injection-molded styrene with brass axles. Price: $11.70 (figure not included). Website: *www.RRStoneworks.com*

Freshwater Models, PO Box 12897, Rochester NY 14612, has some new detail parts in 7/8" scale. These include axle guards for slate/slab wagons, based on those from the Dinorwic quarry. Also available are some new link-and-pin couplers. These are clean white-metal castings. Prices: axle guards, $8 for set of four; couplers, $6.50/pair.

Electronics & software

G-Scale Graphics, 4118 Clayton Ct., Fort Collins CO 80525, announces their improved "Basic RailBoss" Electronic Speed Control for use with four or five channel, 2.4 GHz R/C systems and battery powered, large-scale trains. The unit includes all of the basic speed-control functions: proportional speed control, direction control, momentum, and speed matching for double-heading. Control all of your trains from the same transmitter, one or two at a time. User can program the outputs for forward/reverse lighting or two R/C sound triggers. Included is their standard motor driver, featuring a full 5 amps, from 7 to 30 volts. Price: Basic RailBoss board and four R/C cables, $69. Website: *http://GScaleGraphics.net*

Zimo Elektronik, Schoenbrunner Strasse 188, A-1120 Wien, Austria, has released its MX648: Subminiature-Sound-Decoder. At 20 x 11 x 4 mm, the decoder has the same footprint as the standard non-sound decoder MX630, and is only slightly thicker. It is a full-featured Zimo decoder with identical software and features found in the larger decoder types. Basic data includes: 0.8-amp motor or total-current capacity; function outputs, 32kBit sound memory and 1-watt sound output. Ideally suited for use with miniature Zimo sound decoders (but also with the larger types) are the Zimo miniature rectangular speakers, similar to cell-phone speakers. For more information, visit the website of Art Luescher, Zimo Agency of North America: *www.mrsonline.net*

Miscellaneous

Tinplate Girl is a new website that teaches people how to work with tinplate (tin-can metal) to build models, toys, etc. The site has 45 minutes of free video

instruction (nine videos) on all aspects of working with the material, as well as more than 25 downloadable PDF projects. These include railway-related projects (illustrated), and other projects in common garden-railway scales. Some downloads are free and some cost a nominal amount. Website: *http://tinplategirl.com*

Larry Larson Graphics, 3461 S 5225 W, Cedar City UT 84720, has been acquired by Ozark Miniatures. These graphics are available as dry transfers and water-slide decals and will be produced in the following large scales: 1:32, 1:24, and 1:20.3; and for the following road names: D&RG, C&S, Virginia & Truckee, Napa Valley, Uintah, and more. Website: *www.railroadgraphics.com*

CLUB NEWS

Pocono Mountain Garden Railway Society was founded in 2009 to serve garden railroaders in the Pocono Mountain region of Pennsylvania. Club features include no dues, round-robin-style meetings at members homes, and a modular layout. For information, e-mail: *pmgrrs@yahoo.com* Website: *www.pmgrrs.com*

The Tradewinds & Atlantic Railroad in Coconut Creek, Florida, runs trains on an elevated, three track, gauge-1 layout the third weekend of every month. The inner loop is dual gauge—gauge 1 and two-rail 0 gauge. All three tracks are powered and the inner loop is used for live steam. They also run 7½" gauge, 1½"-scale trains. Information: Michael Smith, *schwinncoll@bellsouth.net*

ERRATA

In our December issue, on page 76, in the last paragraph, the railroad described belongs to Dan Stenger, in Walton, Kentucky, not to Dan Schmidt, as noted. We sincerely apologize to both Dans and to anyone else who may have experienced inconvenience or confusion due to this unfortunate error.

IN MEMORIAM

Jerry Baker passed away on September 30, 2011, at the age of 74. He had been a friend of mine for more than 30 years and was a pioneer garden railroader in Denver. Jerry was an early member of the Denver Garden Railway Society, the oldest garden-railway club in the US. Of significance to *Garden Railways* magazine, Jerry Baker's railway graced the cover of the very first issue of *GR* in 1984. He'll be greatly missed. —*M. Horovitz*

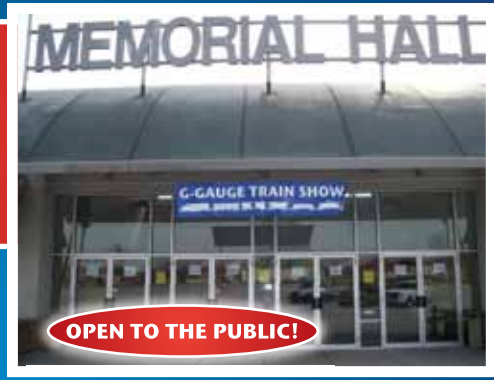
EAST COAST LARGE SCALE TRAIN SHOW
March 23-24, 2012
YORK FAIRGROUNDS, YORK, PA
http://www.largescaletrainshows.com
For GPS directions, use:
York Expo Center, 334 Carlisle Ave., York, PA 17404

ADMISSION: TWO-DAY TICKET ADULT - $18
CHILDREN UNDER 12 FREE
ONE-DAY TICKET ADULT - $10
CHILDREN UNDER 12 FREE
Two-Day Group (Club) Rates Available
$15.00 for 25 or more tickets when purchased in advance.

HOURS: FRIDAY 9:00 A.M. TO 6:00 P.M.
SATURDAY 9:00 A.M. TO 4:00 P.M.

Port Authority Transit "The Spirit of 1776"
The Spirit of 1776
Coming for the Spring 2012 Show
Special Edition PCC Car for the
East Coast Large Scale Train Show
York, PA - March 23 and 24, 2012

* Show cars are available ONLY AT THE SHOW. There are NO mail orders or pre-orders for these show items. These items are of limited quantity and not guaranteed for all attendees.



MAJOR MANUFACTURERS AND RETAILERS
LOTS OF SEMINARS
THOUSANDS OF TRAINS
GREAT DEALS AND BARGAINS
FUN FOR KIDS AND ADULTS

JJ. Productions, P.O. Box 142,
Ridgeley, WV 26753
(908) 361-2117 jjproductions@atlanticbb.net
http://www.largescaletrainshows.com

Charles Ro Supply Company

-FOR ORDERS-
1-800-225-4424 (4425)
Toll Free Fax 1-800-287-0090

P.O. BOX 100 ♦ 662 CROSS STREET
MALDEN, MASS. 02148 ♦ www.charlesro.com
CUSTOMER SERVICE LINE 781-321-0090 ♦ FAX 781-321-6459

-FOR QUESTIONS OR STOCK CHECKING-
781-321-0090

Prices Subject To Change Without Notice And Are Valid For Mail Order Only

"PRESTIGE SERIES"
Die-Cast Metal Locomotives

USA TRAINS

Model Railroader Readers' Awards Choice WINNER

SOUND INCLUDED

AWARD WINNING LOCOMOTIVE!
J1E HUDSON LOCO w/SOUND $1999.95

Roadnames: R20001S NYC w/Phoenix Sound #5344
R20002S NYC w/Phoenix Sound #5343

SOUND INCLUDED — DIE-CAST METAL LOCO

GG-1 ELECTRIC LOCO $1549.95

Roadnames: Pennsylvania (6 Different Verisions), Conrail, & Penn Central

Digital Controls: RS-QEBB Booster Box for GGI *(requires RS-QE Control Box)*. $129.95
RS-QE Control Box for GGI *(requires RS-QEBB Booster Box)*. $49.95

SOUND INCLUDED — DIE-CAST METAL LOCOMOTIVE & TENDER

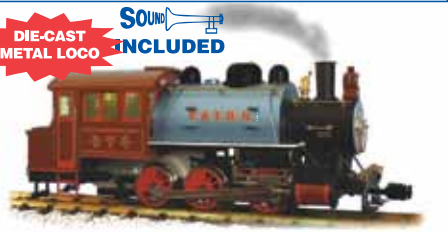
BIG BOY LOCOMOTIVE $3699.95

Locomotive Features:

- 1:29 Scale: The LARGEST Die-Cast Metal Locomotive Ever Made
- Dual Pittman Motors • DCC Ready • Dual Operating Smoke Stacks
- Synchronized Sound System Included • Roller Bearing Drive Axles
- Die-Cast Drivers & Stainless Steel Rims • Metal Drive Rods & Valve Gear
- Lighted Fire Box & Ash Pan Glow • Separately Cast Metal Detail
- Brass Bell • Length of Engine & Tender Approx. 57"

Roadnames:
Union Pacific #4000 (Black/Graphite) First one made
Union Pacific #4012 (Black/Silver) Scranton, PA
Union Pacific #4014 (Black/Silver) Pomona, CA
Union Pacific #4004 (Black/Graphite) Cheyenne, WY NEW!
Union Pacific #4017 (Black/Graphite) Greenbay, WI NEW!

DIE-CAST METAL LOCO — SOUND INCLUDED



DOCKSIDE 0-6-0T LOCO $469.95

Roadnames: D&RGW, SF, UP, SP, NYC, Pennsy, B&O, Reading, B&M, C&S, V&T, Colorado Mining, US Army, Bethlehem Steel, CP, CN, Christmas, MEC, GN, NH

USA TRAINS POWER SUPPLY

R40M 40VA Power Supply with Momentum $69.95
RTP10 Train Power 10 amp Walk-A-Round Power Supply with Momentum $159.95

ALTERNATING DITCH LIGHTS AT LOW SPEED

SD70 MAC LOCOMOTIVE $379.95

Roadnames: SF, UP, SP, NS, BNSF (4), CSX, Conrail, Alaska, New York, Susq., & Western, CP, CN, D&RGW
MULTIPLE ROAD NUMBERS AVAILABLE

UP HERITAGE SD70 MACS $394.95

UP Heritage Roadnames: UP/MO, UP/WP, UP/Katy, UP/D&RGW, UP/C&NW, UP/Southern Pacific
Phoenix Sound System $249.95 + Inst. $60.00

FAN DRIVEN SMOKE UNIT

ALCO S-4 LOCOMOTIVE $254.95

Roadnames: Rio Grande, SF, UP, Burlington Route, C&NW, SP, NYC, Pennsylvania, Reading, BN, B&O, Western Maryland, NP, CP, CN, NH, Christmas, GN, WP, Lehigh, B&M, Milwaukee Rd., MEC, CNJ
MULTIPLE ROAD NUMBERS AVAILABLE
Phoenix Sound System $249.95 + Inst. $60.00

SD40-2 LOCOMOTIVE $319.95

Roadnames: D&RG, Santa Fe, UP, SP, CSX, Conrail, BNSF, Burlington Route, Burlington Northern, Pennsy, Canadian Pacific, NS, Santa Fe Warbonnet, CN
Phoenix Sound System $249.95 + Inst. $60.00

F3A Unit $284.95 — A-B Set $569.95

F3 AB UNIT LOCOMOTIVE

Roadnames: NYC, ACL, CP, UP, SF-Warbonnet, NP, WP, Pennsy-Tuscan, GN, Pennsy-Green, SF-Blue/Yellow, B&M, MEC, SP Daylight, Burlington Rt-CB&Q, Burlington
F-3 A Unit locomotives available separately $284.95
Combo A-B-B-A $1074.95 Combo A-B-A $814.95
Phoenix Sound System $249.95 + Inst. $60.00

NEW! **SPECIAL F3 SANTA FE CHROME SET**
Combo A-B-B-A $1139.95 A-B Set $599.95

Model Railroader Readers' Awards Choice WINNER

COMPLETE WITH 14 FIGURES

EXTRUDED ALUMINUM PASSENGER CAR SETS

Roadnames: ATSF, California Zephyr, Union Pacific, Great Northern, Pennsy Broadway Ltd., Northern Pacific, Southern Pacific, Canadian Pacific, D&RG, B&O, NYC, & Pennsylvania Congressional
Observation $279.95, Coach #1 & #2 $259.95 each
Diner $259.95, Sleeper #1 & #2 $259.95 each
Vista Dome #1 & #2 $279.95 each
Baggage, Combine & RPO $259.95 each
8 CAR SPECIAL ANY ROADNAME $1999.95
5 CAR SPECIAL ANY ROADNAME $1274.95
2 Cars (Observation Or Vista), 3 Cars (Coach, Diner, Sleeper)

Model Railroader Readers' Awards Choice WINNER

GP 30 LOCOMOTIVE $284.95

Roadnames: D&RG, Santa Fe, UP, SP, CSX, Conrail, Chessie, Burlington Northern, Burlington Route, C&NW, Illinois Central Gulf, CP, Great Northern, Milwaukee Rd. NYC, Reading, Soo Line, BNSF
Phoenix Sound System $249.95 + Inst. $60.00

GP38-2 LOCOMOTIVE $284.95

Roadnames: Undecorated, Lehigh Valley, CSX, BNSF, Rio Grande, UP, Santa Fe, Conrail, Pennsy, C&O, CP Rail, Milwaukee Rd, NS, Alaska RR, CN, Rock Island, B&O, Southern, B&M (Bluebird), BAR, NYC, MEC, Mopac
Phoenix Sound System $249.95 + Inst. $60.00

Model Railroader Readers' Awards Choice WINNER

AWARD WINNING LOCOMOTIVE!
GP7 & 9 LOCOMOTIVE $284.95

Roadnames: Undecorated, Burlington Rt., ACL, C&NW, Chessie, UP, SF (Warbonnet), GN, Pennsy, BN, NH, SP, SF (Blue/Yellow), B&M (Bluebird), Rio Grande, Alaska, CN, Rock Island, WP, NP, N&W, SF (Tiger Stripe), NYC, B&M, CP, MEC, U.S. Army (Red), U.S. Marine Corps (Green), TH&B, NEW! Christmas (2012)
Phoenix Sound System $249.95 + Inst. $60.00

"ULTIMATE SERIES"

OPERATING SMOKE UNIT
FULL INTERIOR w/BRAKEMAN FIGURE
NEW CABOOSE STYLE TRUCKS

CENTER CUPOLA CABOOSE $132.95

Roadnames: Undecorated, Alaska, B&O, B&M (Blue), B&M (Brown), CN, CP, Chessie, Christmas, Conrail, D&H, Erie Lack., Lehigh & NE, Lehigh Valley, MEC, NH, NYC, Pennsy, Reading, SF, SP, TH&B, UP, WM Jersey Central Lines, GN, Bethlehem Steel

SHIPPING & HANDLING POLICY

Shipping charges will be charged based upon your total order and will ship VIA FedEx or UPS ground service in the Continental United States (except Alaska and Hawaii). The following rates apply:

TOTAL ORDER	SHIPPING CHARGE
Over $1500.00	$25.00
$1000.00 to $1500.00	$15.00
$500.00 to $1000.00	$10.00
$75.00 to $500.00	$9.00
Under $75.00	$10.00

For orders that require multiple shipments, there will be a $6.00 charge for each shipment made on your backorder. To minimize these charges shipments will be in $75.00 increments. We reserve the right to ship orders in any number of shipments per order we desire. Any customer request to ship backorder under $75.00 requires a additonal $5.00 shipping charge. Mass. residence add 6.25% sales tax. 15% restocking charges on returns if not exchanged for items of equal value. No Returns after 10 days. No Returns of Books or Video's.

COMPLETE LINE OF G GAUGE
www.charlesro.com

TOLL FREE FOR ORDERS 1-800-225-4424 • 1-800-225-4425 • FAX TOLL FREE 1-800-287-0090
SEND SELF ADDRESSED STAMPED 9" X 12" ENVELOPE (with $1.87 postage) FOR OUR "G" GAUGE PRICE LIST

"ULTIMATE SERIES"

BAY WINDOW CABOOSE $114.95

Roadnames: Undecorated, SF, SP, UP, CB&Q, C&NW, Chessie, NYC, Pennsy, Conrail, Erie Lack., ACL, CSX, Southern, B&O, Rock Island, LIRR,Norfolk Southern, D&H, Canadian National, Seaboard

EXTENDED VISION CABOOSE $114.95

Roadnames : Undecorated, SF, SP, UP, CB&Q, D&RG, NH, NYC, Conrail, GN, BNSF, CSX, B&M, Alaska RR, CP, Soo Line, MEC, Illinois Central, SF, Rock Island, Chessie, U.S.M.C, SP/Police, CN, SF/Christmas

40' BOX CAR $89.95

Roadnames: SF, UP, SP, Conrail, NH,GN, Chessie, BN, CSX, Rio Grande, NYC, ACL, C&NW, CB&Q, Pennsy, Lehigh Valley, N&W, B&M, CP, WP, B&O Alaska, D&H, Milwaukee Road, Rock Island, MEC, SF, D&RGW, UP, GN, SF "Super Chief", PRR, TH&B, WM, Soo Line, CN, Rutland, Cotton Belt, Lehigh & NE, Erie Lack., Reading

3 different style doors: Steel Door, AAR Double Door, or Plug/Steel Combo **Any three cars for $259.95**

50' BOX CAR $97.95

Roadnames: SF, UP, SP, Conrail, NH,GN, C&O, BN, NS, CSX, Rio Grande, NYC, ACL, C&NW, CB&Q, Pennsy, Lehigh Valley, N&W, B&M, Milwaukee, NP, WP, L&N, CN, D&RGW, SF, CP **Any three cars for $279.95**

Three different style doors: 6' Panel Superior, 8' Panel Superior, or 8' Youngstown

60' BOX CAR $99.95

Roadnames: SF, UP, SP, Conrail, GN, C&O, BN, CSX, NH, Rio Grande, NYC, CB&Q, Pennsy, Erie Lackawanna, B&O, Western Maryland, Canadian Pacific, CN, Norfolk Southern, Milwaukee Rd, Soo Line, Southern, Rock Island, BNSF, WP

2 different style doors: Single Door, Double Door

Any three cars for $284.95

40' REFRIGERATOR CAR $97.95

Roadnames: SF (Map), PFE, GN, REA, CB&Q, NYC, NP, State Of Maine/NH, Alaska, BN, C&NW, WP, C&O, Pennsy, Reading, B&M, UP Overland **Any 3 cars for $279.95**

NEW! **4 Car Set Roadname:** PFE SP/UP

Six sets available - each set has four different Rd #'s

4 Car Set $329.95 **All 6 of 4 Car Sets $1875.00**

50' REFRIGERATOR CAR $107.95

Roadnames: SF, NP, BN, GN, PFE, UP, Milwaukee Rd., CB&Q, CP, BAR, BNSF, NYC, Rio Grande, C&NW, REA, Fruit Growers Express **Any three cars for $309.95**

"ULTIMATE SERIES"

BI LEVEL ENCLOSED AUTO CARRIER $194.95 NEW!

Roadnames: ATSF, BNSF, UP, SP, Conrail, NS, CSX, BNSF, BN, CP Railway, CP Rail, CN, C&NW, Milwaukee Rd, Soo Line, SCL, GTW, KCS, TFM, Trinity Leasing, Frisco, C&O, N&W **Any three cars for $549.95**

29' BEER CAN TANK CAR $94.95

Roadnames: Undecorated, UTLX, GATX, SHPX, CGT, Hooker, Sunoco, ADM, Dupont, Wyandotte, Celanese, NS, Brea Chemicals, CPC Int., Geigy, Kodak, J.M. Huber, Penn Salt,Quaker State, Shell, Procor (Green), UP, BNSF, Christmas **Any 3 cars for $269.95**

4-BAY CENTER FLOW HOPPER $112.95

Roadnames: Undecorated, ATSF, BNSF, UP, SP, DRGW, CB&Q, GN, CSX, BN, NYC, C&NW, Conrail, NS, CP Rail, CN, Shell, Gulf, DOW, DuPont, Enjay, Co-Op Fertilizer, Diamond Plastics, Tennaco, ADM, Alberta (12 versions), CN, Saskatchewan, WP, Cotton Belt, Pennsy, CP, Grain Train Canadian Gov. Grain **Any three cars for $324.95**

42' MODERN TANK CAR $99.95

NEW!

Roadnames: Undecorated, UTLX, GATX, SHPX, Sunoco, Hooker Chemicals, Engelhard, Diamond Shamrock, Airco, Safety Kleen, Dupont, Shell, Ontario Carbonate Inc, ADM, Procor (Black), Citgo, Texaco, Rio Grande, SP, BNSF **Any 3 cars for $284.95**

70 TON 3-BAY COAL HOPPER $92.95

Roadnames: Undec., SF,UP, Rio Grande, SP, NS, Pennsy, Conrail, NYC, NH, CSX, B&M, Chessie, C&NW, Reading, N&W, GN, BN, Peabody, Lehigh Valley, Southern, C&O, B&O, CB&Q, Christmas, CN, CP **Any three cars for $264.95**

55' MODERN TANK CAR $119.95

Roadnames: Undecorated, UTLX, GATX, ADM, Corn Products, Cargill, Procor, Englehard, CHVX (Chevron), CGTX, Celotex, Sunoco, Clark, Diamond Shamrock, BN, Airco, US Rail Leasing, CONX (Conoco), Harvest States, HPLX (Exxon), Dupont, ATSF, UP, Safety Kleen, SHPX, Hooker Chemicals, Procor (Black) **Any 3 cars for $344.95**

WOODCHIP CAR $99.95

Roadnames: Undecorated, SF, UP, Rio Grande, SP, NS, Pennsy, Conrail, NH, CSX, B&M, Chessie, Great Northern, BN, Burlington **Any three cars for $284.95**

10,000 GALLON TANK CAR $99.95

Roadnames: Undecorated, UTLX, SHPX, GATX, UP, ATSF, Rio Grande, SP, Pennsy, CB&Q, Alaska, Shell, Cities Service, Conoco, Dow, Dupont, GE, Gulf, Hooker, Union, Texaco, Jack Frost, Penn Salt, US Army, Christmas **Any three cars for $284.95**

INTERMODAL CONTAINER CAR

Roadnames: TTX, BN , ATSF, UP, SP, BNSF, CN, CSX, Conrail

INTERMODAL WITHOUT CONTAINERS $86.95

INTERMODAL WITH CONTAINERS $124.95

ANY 3 PRICED AT $124.95 FOR $359.95

INTERMODAL 5 UNIT SETS WITH NO CONTAINERS $409.95

5 Unit Articulated Set Roadnames: TTX, BN, ATSF, UP, SP, BNSF, CP, CSX, Conrail, Norfolk Southern

INTERMODAL 40' SHIPPING CONTAINERS $29.95

Roadnames: Undec. Sealand, APL, CSX, SF, Conrail, BN UP, NYK, TEX, Genstar, Tiphook, MOL, Evergreen, Maersk, Hanjin, Transamerica, SP , P&O, CN, OOCL, NS, CP Rail Pacer Stacktrain, Schneider, Sinotrans, CMA, CGM, NOL, NYK, Hamburg SUD, CN, JB Hunt, P&O Nedlloyd, CP Ships

INTERMODAL MULTI-PACK CONTAINERS $149.95

Each Multi-pack consists of 2 X 45', 2 x 40' & 2 x 20' containers

Loads not included.

DEPRESSED CENTER FLAT CARS

DEPRESSED CENTER FLAT 2 PACK $99.95

Roadnames: Undec., SF, UP, D&RGW, SP, Pennsy, NYC, Conrail, Chessie, CSX, GN, BN, C&S, NH, C&NW

Any three 2 packs (total 6 cars) $284.95

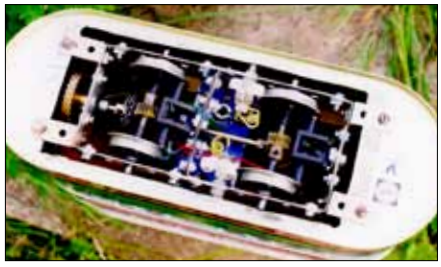
WOODSIDED REFRIGERATOR CAR $65.95

Large Selection Available. Send SASE ($1.87 postage) for price list or visit our web site for a complete listing of cars.

Any Three Refrigerator Cars $184.95

TOLL FREE FOR ORDERS 1-800-225-4424 • 1-800-225-4425 • FAX TOLL FREE 1-800-287-0090
SEND SELF ADDRESSED STAMPED 9" X 12" ENVELOPE (with $1.87 postage) FOR OUR "G" GAUGE PRICE LIST

Tin-can tram



I recall an item in *GR* a few issues (or more) back about using tinplate. I'm not exactly into that, but you might find this adaptation interesting.

My fancy was taken by an Marks & Spencer biscuit tin in the shape of a double-deck streetcar, bought in one of their outlet stores last year. It struck me that it was about the right size for running on gauge-1 track as a novelty item at our G-Scotland Christmas meeting last year (after fitting with a suitable truck mechanism, of course). Here are a couple of images of the modified tram running on a friend's garden railway.

The mechanism under the tram is made from Meccano, fitted with modified LGB wheels and pick-ups. The motorized tram runs well and is quite striking, gliding along a track. It certainly has raised a lot of bemused comment and it has been requested at a few public shows! —*Mike Gray, Dumfries, Scotland*

Improving Lionel's battery-powered trains

I had a Lionel battery operated, remote controlled, large-scale freight train, with bell and whistle, that liked to derail and did not always get the signal or, if I held the hand control a certain way, it would stop or blink the headlight and firebox light in strange patterns. I got tired of that so I put it on the self.

After reading reviews about how Lionel's battery trains derail, and their limited reception range (15'), I decided to give it another try. I now find the train very enjoyable. Here are a couple of tricks I learned to solve the problems.

Use LGB 5'-diameter curve track to help solve derailing problems—Lionel's track is too tight. I solved the problem of the low-clearance trucks that snag switches, rerailers, and uncouplers. I modified the trucks by using expired credit cards to replace the thick lower-truck assembly, which hangs too low and snags things. The assembly is held on by three screws. Cut a piece of the credit card to 2" x 1⅛", drill three holes in it, and install it. If you want, make it 5⁄16" longer so you can bend one end up 90° to act as a support for the coupler sag. I also weighted the locomotive pilot and trailing wheels to prevent derailing bounce, using race-car self-stick weights from the hobby shop. Instead of six dry cells in the tender, I use a re–chargeable 1600ma Radio Shack battery (#23-1171).

It is nice to see the train run over small twigs, pine needles, leaves, and dirt specks without jerking due to dead spots. —*Anthony Lamb, Oxnard, California,* lambstwo22@aol.com

Growing your club

Marc's recent editorial on growing your club struck a chord with me—especially since my local group (the Yorkshire Group of the 16mm Narrow Gauge Modellers Association) held its annual garden-railway show this last weekend. Mind you, we do things a little different here in the UK. The group hired an exhibition hall of 12,000 square feet, invited various garden-railway-equipment suppliers to take space (26 traders came this year), and got owners of portable railway layouts to bring them to the show (seven layouts this year, including the two layouts that the club owns). Then we advertised the event both in the UK garden-railway press and locally. This year we had almost 1,100 visitors over the two days, who pay a small entrance charge.

So, the club makes income from charging the traders and paying visitors, whilst our costs include the hire of the hall, expenses to bring the layouts to the show, publicity, and insurance. We'll probably make a cash surplus of about £1,200 for our efforts—enough to keep our layouts in good order and to save toward replacing them in a few years. I guess we had maybe 50 group members lend a hand in some way over the weekend, so it's not for the faint-hearted. We've been doing it now for 10 years, so we've had some practice ! —*Phil Thompson,* phil.a.thompson@uk.pwc.com

I am a long time reader of *Garden Railways*. I just finished reading your editorial in the October issue ("Growing your club") and wanted to point out to you that your magazine at one time published a club directory. From this club directory I joined my first club and I am still close friends with many of its members. I have now moved and started a club of my own and it has been a struggle to get members and interest. I believe that our club does as much as we can to promote ourselves. I, as well as many other subscribers I talk to, feel that the club directory should be put back into the magazine. —*Nico Corbo,* PMGRRS@yahoo.com

[*The decision to remove the club list from the pages of the magazine was not an easy one. We have a limited number of pages to fill in each issue and the club list was simply growing too large. Reluctantly, we removed it from the magazine. However, it is still maintained online on our website. Go to* www.gardenrailways.com, *click on the "For Beginners" tab near the top of the page, and scroll down to "Find a club."*

We also have a "Club news" section in our "Notes & news" column. This is there for the benefit of any club who is doing something newsworthy or for new clubs to announce their existence and contact information. Unfortunately, it is rarely used. —Ed.]

Index

As a new visitor to your e-mail newsletter, I found, by clicking here, there, and everywhere, the tab for the annual index. What a brilliant tab! I have, for some time now, been collecting back numbers of this great magazine (as I have only been receiving it the last couple of years by subscription, and found it so interesting I have started a collection in binders). The annual index

will be a great way to add an index at the front of each binder, thus saving hours of work compiling it all myself. Also, by cut and paste, a nice printed title for the binder spine can be created. I look forward to browsing further depths of this remarkable newsletter. Keep it coming. —*Peter Spencer, Gnome Valley Railroad, England*

An open letter to manufacturers, distributors, and dealers

I am becoming more and more frustrated with the "garden railway" industry. I am building a scale, 3'-narrow-gauge railroad in my backyard, based upon gauge-1 (45mm) track, which works out to 1:20.3 scale. Even gauge-1 track has scale (independent of the gauge); e.g., what is the scale of the size and spacing used for the ties? There are a number of garden people who have very loose "rules" as to scale but I am not one of them.

I am not alone in this pursuit of scale railroading in the garden. The source of my frustration is the lack of clear and distinct marking of products as to the scale to which the products are produced. Those who do clearly mark the scale receive my praise and my business. Those who do not clearly mark the scale will not receive my business. —*Woody Hodge, Concord, California,* dhodge@ca.astound.net

Choosing a scale

Mr. Bass's article "How to choose a scale" (October 2011 *GR*) was informative to a relative newcomer to large-scale railroading. I model in 1:29 scale. From the article, the impression I get is that when you can't find an item in your scale—buildings, vehicles, figures, etc.—it is better to go smaller than larger. I just want to confirm that. —*Dave Kalata, Southlake, Texas*

[Vance Bass responds: *This is sort of a Zen koan, isn't it? You know. . .one of those ultimately unanswerable questions that make you ponder and articulate your philosophy.*

Let's look at it by the numbers, first. Since you're modeling in 1:29, your options for commercial items, like figures, cars, and buildings, are 1:32 or 1:24. 1:29 scale is 10% larger than 1:32 scale, but 20% smaller than 1:24. So, the "out-of-scale factor" for 1:24 is twice as large as that for 1:32—something that's going to be much more noticeable. In this case, I would go with 1:32.

If you're comfortable with mixing scales in the first place, you can go by the philosophy "if it looks good enough, it is good enough." It's your hobby, after all. —VB]

Obscure abbreviations

On page 15 of the October 2011 issue, I'm lost as to what "n/b/ws" stands for in Alain Gavard's letter to the editor. I'm used to seeing unfamiliar technical terms in the mag, but this one is really strange. —*David Stack, Milwaukee, Wisconsin*

[*The abbreviation, n/b/w (plural, n/b/ws), is an old model-railroad term meaning nut/bolt/washer. These are usually supplied as individual (non-functional) detail castings, with the nut, bolt, and washer integral in a single casting.* —Ed.]

Watchman's shanty

I thought you might get a kick out of this one. You published the drawings for this structure online in conjunction with the August 2011 *GR*. I made this 1:24-scale copy in resin. I used the same technique as in my last article on casting walls (June 2011 *GR*). Remember, I said the technique was good for any structure with repeating elements, not just big buildings. I cast six copies of a wall section, then cut a doorway into one of them.

I did make a master and castings of one-sixth of a roof but it did not go well. It would have if the roof sections were flat but, because of the curve in the roof, all the mating edges are weird curves. The castings did not fit together well enough for a good model so I built the roof in place on the model using traditional methods. I do have to touch up the weathering yet. —*Bob Santos,* SantMin@aol.com

Above-ground railways

My outdoor railway went from a rock garden at Rock Harbor to an above-ground line on CDX plywood, with 30" legs on concrete pads in 2003. It has now been replaced with a new configuration this year for my CDX Rwy. Div. of the Weona Railway System. Trains are made up in Idlewheel Yard for route switching both directions, using reverse loops. —*Max Sarazin, Weona Railroad, Cape Cod*

I'm wondering how many people have, or would like to have and above-ground layout? Due to a back problem, I plan to have such a layout and I'm sure I'm not alone in my interest in this way of enjoying garden railroading. Since I will be running a four engine, seven-passenger-car train, I will have a pretty long layout. My backyard is big enough to run 12'-diameter and 11'-diameter tracks side by side, in order to simultaneously run trains of visiting model railroaders.

I hope that other readers will start writing about their own above-ground layouts because people like me, with back problems, love garden railroading, too. —*Ken J. Botta, Harvey, Illinois*

If you have something to say, send your comments to "Letters," c/o *Garden Railways*, PO Box 460222, Denver CO 80246 USA; or e-mail them to *mhorovitz@gardenrailways.com*

AIRWIRE® NOW SHIPPING

$159

4.3 inches tall
2.5 inches wide
1.3 inches deep

- Internal antenna
- 8 locomotive memory slots
- 16 unique frequencies
- 11 transmitter power levels
- 28 DCC functions
- 1 to 9999 minute auto-shutoff timer
- Large speed knob
- Big, bright graphics display
- Easy to use with on screen messages
- Simplified setup menus
- Comfortable for right or left handed use
- Optional belt clip available

CVP PRODUCTS
Since 1974

AIRWIRE® 900

P.O. Box 835772 Richardson, TX 75083 www.cvpusa.com

AIRWIRE AND AIRWIRE900 ARE REGISTERED TRADEMARKS OF CVP PRODUCTS

TIPS & TRICKS

Protecting plants from weed killer

Weeding is a common chore for most of us. Reluctantly, I gave in to a weed killer. The problem was how to avoid collateral damage. Here's my method for shielding desirable plants from overspray. Use a 5" or 6" piece of schedule-40 PVC pipe. Thread the pipe over the emerging grass, then press the pipe into the ground so it stands vertically. Set the nozzle of the sprayer to "stream," place the nozzle against the pipe opening at the top, and spray. Leave the pipe in place for several days for maximum effect (or in case you have to spray again). *—Tony Recht, Torrance, California*

Storing paint

We found a box of old model paint. I once read a tip in *Model Railroader* that paint should be stored upside down with three or four BBs in the bottle. I shook a bottle of Floquil Boxcar Red and heard the BBs rattling. The paint was still great. How old was it? According to the sticker, it was purchased at a hobby shop for 65¢! *—Judy & Bob Huddleston, Northglenn, Colorado*

Gluing in windows

When gluing in windows, don't use CA-type cements. These will frost clear plastic. Instead, use Elmer's Glue or Arlene's Tacky Glue to hold your windows in place. Once the glue has dried, you can trim away excess with a #11 X-Acto blade. *—Michael Smith, Dania Beach, Florida*

Send us your tips and tricks

E-mail your submission to *mhorovitz@gardenrailways.com* Put "Tips" in the "subject" field and include your mailing address. Keep your text brief—100 words or so. Send along one photo per tip, if necessary. For submission guidelines, visit *www.GardenRailways.com*.

Train-Li-USA LLC

All ™ are trademarks of Train-Li-USA, except LGB, MTS, ZIMO, Delrin which are ® of Others

"all about G-Scale" From Hobbyists for Hobbyists - that's why we care!

BBB ACCREDITED BUSINESS
508-529-9166
info@train-li-usa.com
3 Kensington Way
Upton, MA 01568

Railbender, Houses, JigStones®, Figures, Accessories, Cars, Sound & DCC installation
LGB® & ProLine™ rolling stock w. Quality Guarantee, >4500 LGB® parts & 1st class. repair

Your trains deserve the best!

Quality Track, Switches, Clamps, Drives (Made-in-Germany) in Brass, Nickel

ProLINE *all R designation are the closest radius in feet (e.g. R7 = 7')*

Curved: R10/R7, R7/R5, R6/4, R4/R3, R4/R2 **Y:** R7, R10 **X:** R7, R4 **3-Way:** R7/R7 (l or r first)

RhB SB-v

$395 incl. ballbearing wheels

RhB AB 1505 - $245
RhB ab 1505/6/7 set - $695

HSB KP4ip - 5 individual versions + 2 different sets, in two colors (HSB Prototypical or LGB red) - starting at $245 w. metal wheels!

Buy only from the market leader

EasyBend DuoTrak™

Copied but never matched - don't waste your money

The world's leading railbender to bend both rails of already assembled track in seconds. This tool has been proven by thousands around the world - unlike the imitations made of inferior metals instead of steel.
Real quality is in the details! ***Features include:***
Precise track gauge, repeatable radius through measurable fine adjustment, built-in levels, easy to use. **Stainless steel** ball-bearings, **L-shaped** torsion proof body for lifelong precision. **InPalm™** easy handle delivers push power w/o twisting your wrist. **Delrin** gliders for smooth operation

Museums Quality Sound analog and digital and next Generation DCC with TrueSound DCC™ decoders

MTS® Compatible

> 160 Sound Apps from around the world USA, UK, Switzerland, Germany, Slovakia, Poland, Italy, Czech Republic or make your own

Galloping Goose, Climax B, D&RG47, D&RGW T-12, D&RGW C16 coal and wood, Forney, Heisler, K-27, 2-6-6-2 logging Mallet, 2-6-0 Mogul, 2-6-6-2 Sumpter Valley, 2-6-6-2 Uintah, Davenport 0-4-0, Big Boy 4-8-8-4, Gypsy Donkey 0-4-0, Hudson 4-6-4, 2-8-8-2 Mallet, Genesis, F3, GP38-2, GP9, SD40-2, SD70MAC, Dash 9, UP Gas turbine "Veranda"

G 3/4, G 4/5, Gm 4/4, Tm 2/2, Abe 4/4 I/II, Abe 8/12 Allegra, Abt, Ge 2/4, Ge 4/4 I/II/III, Ge 4/6, Ge 6/6 I Croc, Ge 6/6 II, Gem 4/4

HSB 99.6001, HSB 199.8 Harzkamel, V11, KLV20 (VW bus), BR01.5 (Coal, Oil) BR44 (Coal/Oil), BR80, BR94, BR 120 "Taigatromel" BR132 "Ludmilla" BR218, V60 V100, V200, VT98, BR110, BR 182

Zimo has been for a long time the technological leader in the DCC market. The next generation is simply fantastic.

Key Features include:

- ✓ Hi intensity color touch CRT
- ✓ Graphical and named engine and accessory representation
- ✓ Clear text CV programming
- ✓ Easy button function control
- ✓ EasySlide speed control
- ✓ 1500' line of sight RF range
- ✓ Up to 12A power output (20A in bridge mode of 2MX10)
- ✓ Bi-directional communication (e.g. refuel engine)

Use only top quality speakers for your sounds! We carry a full line of VISATON speakers - simply the best.
For chuff synchronized smoke, use our ProLine fan driven smoke units.

All new MX695 series - in stock
there is no better decoder on the market!

Find us on: www.train-li-usa.com

Our products are also available from our partners that understand the value of quality for an affordable price:

Bod's Railways: (302) 376-9508
Hunter Railw.Sys.: (916) 858-1692
Only Trains: (763) 684-4131
Trains & Trees: (978) 456-8455
Eaglewings Ironcraft: (602) 276-8101
Kidman Tree Farm: (515) 984-6946
RLD Hobbies: (877)-753-4629
Watts Train Shop: (800) 542-7652
GoldCoast Station: (805) 339-0379
Loco-Boose Hobbies: (360) 754-5596
Star Hobby: (410) 349-4290
Wickford Gardens: (401) 439-8088

Let there be light: Part 4 — going solar

PHOTOS BY THE AUTHOR

The crew on East Broad Top N° 12 takes a few moments to pause and chat with waiting passengers at Blacklog Depot, as Tuscarora Railroad N° 3's headlight illuminates the scene.

Green energy seems to be all the rage these days. We can buy hybrid or electric cars now, and alternative-energy generation from wind, solar, and geothermal resources is growing in popularity as people want to lessen their reliance on more traditional power sources. Even within the pages of *GR* we've seen articles on using solar power to recharge batteries to run our trains. Yes, the world is going green and, when I was looking for a simple solution to light the buildings on my railroad, I figured, why not join the trend?

First, a few words about the buildings on my railroad. They're designed to be left outdoors year round. I like to be able to look out on the railroad at any time and see it, complete with the buildings that set the scene—and that includes looking into the backyard at night. I don't do detailed interiors, or interiors at all, for that matter. The upshot of this is that my interior lighting can be simple, general illumination that doesn't reveal too much.

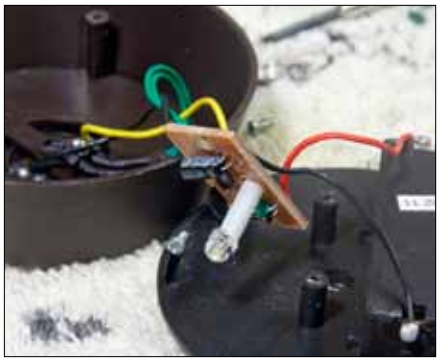
It helps that I'm modeling the 1910s, before electricity came to south-central Pennsylvania. If you had light, then something was burning. As such, you wouldn't have had lights on in every possible room, over every possible doorway, etc., as was later seen once electricity came around. My lighting needs per building would be limited to an interior light or two, and maybe one or two lights on the outside, if there was a signal at a station or if I wanted a lantern hanging outside.

When I was growing up, my Dad and I used Christmas lights inside our buildings, plugging them into 7V NiCad battery packs when we did night running. The effect was great but you needed a battery pack for each building. On Dad's railroad, even if we just lit the stations and a few other signature buildings, that was a dozen or more battery packs. It was an expensive way to do business, and a battery pack only lasted six or seven hours. This was certainly long enough for the operating session but, overall, it was more hassle than it was worth just to have some illumination coming from within. I wanted a system that would be less labor intensive on own my railroad.

1. Examples of the solar-powered-LED walkway lamps available from home-improvement stores. They come in a variety of styles, but the electronics inside them are virtually identical.

The lights

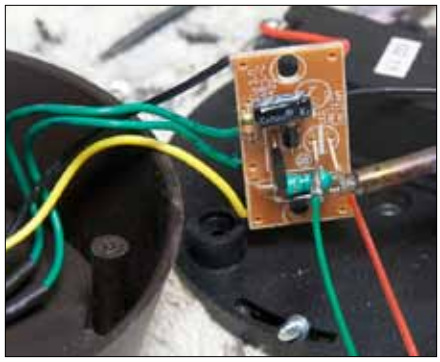
A trip to the local Home Depot provided the answer. They had solar-powered-LED walkway lights, cousins of their low-voltage landscape lighting systems but completely self contained (photo 1). Each light cost around $3. I figured on one or two solar panels per building on my railroad, which would not be that expensive. I



2. The "guts" of these lights are fairly simple. The solar panel and photo sensor are in the top (left), the AA battery is in the bottom (right), and the PC board with the LED is in the middle.

3. The box for the solar array is made from cedar fence boards—the same cedar the fence is made of so, over time, it will blend in with the rest of the fence. The holes in the bottom are for wires and for water to drain. The ½" trim along the inside edges raises the solar collectors off the bottom so that water cannot seep into the electronics.

4. The original LED gets unceremoniously snipped from the PC board. If you want to keep these LEDs for future use, clip them off somewhere in the middle instead.



5. Once the LEDs are clipped, new wires get soldered to the remaining stumps of the old LED's leads. Current can flow only one way through a LED, so use one color for one side and another for the other.

6. Re-assemble the unit, running the wires out of the original hole for the LED.

bought a few lights, took them home, and had some fun.

Everything that controls these lights is contained in the "lid" of these units (photo 2). This consists of a solar panel, a rechargeable AA battery, a photo sensor to tell when it's getting dark outside, and a small circuit that either routes power from the solar panel to the battery or from the battery to the LED when it gets dark. It's very simple.

The first thing I noticed was that the color of the LED was far too "cool" for my purposes—definitely not the warm glow of an oil lamp. So I tried two experiments; in one light, I colored the LED with paint; in the other I replaced the supplied LED with a warm-white LED from a string of Christmas lights.

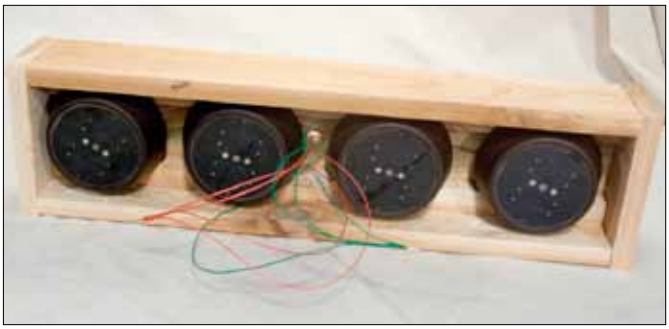
My goal was to see how many LEDs I could power with one solar panel and to see how long they'd last compared to a "stock" light. This was in December, so the days were short—an ideal time for testing longevity with short charge cycles. If it could work in December, then the summer months would be a breeze.

I found that, no matter what I did to the supplied LED, it wasn't the right color, so those would have to go. I also found that I could run two warm-white LEDs from one solar panel without any adverse effects, so a plan was hatched.

The installation

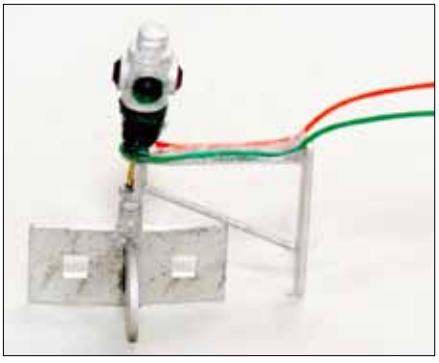
The next part of the equation was where to put the "lids" (the part that houses the solar panel, battery, and LED) so that they would receive ample light but not be obtrusive in the garden. Obviously, I couldn't have solar panels on the roofs of my buildings, and a solar farm in the garden would look equally anachronistic. I decided to put them in boxes in small, four-panel arrays that I could attach to the fence along which the railroad runs (photo 3). They would be mounted near the top of the fence, where they'd get the most sun (because the fence wouldn't shade them) and they'd be at eye level with someone standing in the backyard, so they'd never actually be seen.

I took each lid apart, cut off the LED, and soldered wires to the leads that remained (photos 4, 5, and 6). I threaded those wires through the hole for the LED, and each unit was ready to go. I discovered that you could wire all four solar panels in parallel and run them as a single unit, powering up to eight LEDs from the array, instead of having to run individual wires from each solar panel to its own set of two LEDs. This was a huge savings in terms of both wire and labor. Each town would have its own "trunk line" to power the LEDs. So the outputs of all four lids were wired together and, once installed, would be wired to the "trunk line" that ran to each town (photo 7).



7. The four solar panels mounted in the box, with the wires ready to be attached to the feeder line that will go to each town.

8. Inside the buildings (seen here from the bottom), the lights are simply mounted, since the buildings have no interior detail. The wire is tucked out the back of the building, where it will be hidden from view by other details.



9. This Ozark Miniatures train-order signal is lit with an LED. The base of the signal is the base of the LED Christmas bulb, which conveniently holds the LED in place in the lantern.

10. The solar array, attached to the fence near the top. This box is mounted at eye level, so viewers won't see the solar panels. The feeder line is attached to the solar panel with regular wire nuts.

11. The 12-gauge, low-voltage-lighting wire is laid just under the surface, and run under the track where it needs to cross. Future work will involve burying the wire further into the ground.

Building lights

For the buildings themselves, my lights are simple. Photo 8 shows how I mounted two LEDs inside my woodworks. They're just attached to a piece of wood that runs across the building above the windows. Photo 9 shows a train-order signal that would be attached to the outside of a depot. The green base of the lantern itself is the base of the assembly that plugs into the string of Christmas lights. I took the cap off, leaving just the LED exposed, and put the lantern over it instead.

Photo 10 shows the solar array attached to the fence and the "trunk line" coming up from below. I used 12-gauge, low-voltage-lighting wire for the feeder that runs from the solar array through each town. Photo 11 shows it crossing just under the ties of the track.

Next summer, the town manager wants to do a greater earthworks project to better hide the wires once we finalize the location of the buildings that will be getting lights. I'll probably dig a shallow, 2" trench and hide the wires properly. In reality, though, the groundcovers quickly grew to hide the wire running along the surface.

Variations on a theme

This is great for those who have one or two buildings and who model the late 19th or early 20th century, when you can get away with few lights. What about others, who have more modern cities and whose demands for electric lights may be more in line with Times Square than Blacklog Narrows? If you want to stay "on the grid," I suggest that you look at any of the low-voltage-lighting systems on the market and adapt one of them. Some of these use LEDs, while others use incandescent bulbs. Whatever your need, pick a system to match.

If you wanted to stay "off the grid," consider using a larger solar panel to charge a 12V marine battery. Then, when you need lights, just flip a switch to turn 'em on (or leave them on all the time, using a similar photo sensor to shut them off during the day.)

Regardless of your power needs, I encourage you to try lighting one small area on your railroad that you can see from the house. We build our railroads for enjoyment; being able to see them at night adds to the time that we can enjoy them, even if we're not running trains.

The lead photo shows an early-evening scene at Blacklog, with lights on at the depot and woodworks. These lights come on just as it's getting dark outside, and the buildings stay lit all night. No matter what time the dogs wake me up to do their business, I can look outside and be transported to a more bucolic time and place. . .which is good, since all I really want to do is climb back into bed.

About this series

August: Overview of locomotive lights
October: LEDs
December: Power and lights

WWW.RLDHOBBIES.COM WWW.RLDHOBBIES.COM WWW.RLDHOBBIES.COM WWW.RLDHOBBIES.COM

RLD HOBBIES LLC
Garden Scale Trains

We carry USA Trains, Aristo Craft, Atlas "O" Scale Accucraft, AMS, AML, Kadee, Cordless Renovations, Bridgewerks, Bachmann, Hartland, Llagas Creek, QSI sound, Phoenix Sound, Garden Metal Models, AirWire, Splitjaw Railclamps and Williams O Scale

AML Bethgon II Coal Porters 1/29
$111.89ea

G421-01 BNSF

Other Road Names
UNDEC, BNSF BR, NS, UP, CSX, BN, CN
Conrail & Wisconsin P&L

G431-11 C&NW

G431-05 BN

G431-07 CR

G431-06 UP

G431-04 CN

G431-08 SF

$79.89ea

Rock Island
100 Ton Coal Hopper
4 Road Numbers

Illinois Terminal

Illinois Central

Rock Island

American Mainline
PS2-4750 3 Bay Hopper Cars 1/29
2 Road Numbers Each
$127.89ea
More Road Names Not Pictured
BNSF, N&W, CSX & Data Only

Aristo Craft

Locomotives	
Dash-9s	$409.89ea
SD45s & E-8s	$389.89ea
GP40s	$344.89ea
Eggliners	$ 89.89ea
Consol. 2-8-0	$539.89ea
Pacific 2-6-2	$509.89ea
Mallett 2-8-8-2	$649.89ea
Cars	
100 Ton Hopper	$79.89ea
40FT Box Cars, DD Box Cars	
Stock, Reefer, Plug	$74.89ea
53 FT Evans	$78.89ea
Single Dome Tank	$66.89ea
Triple Dome Tank	$61.89ea
Crest	
Revolution TE set	$244.89ea
Revo RX	$ 81.89ea
Revo RX 6pk	$439.89ea
Lithium Battery	$ 98.89ea
Nmih Battery	$ 61.89ea
TE 2.4 GHZ BASE STA.	$264.89ea

USA Trains

Locomotives	
F3A, GP30, 38, GP7/9	$273.89ea
SD70s	$362.89ea
SD70 Heritage	$379.89ea
SD40-2s	$304.89ea
F3AB	$546.89ea
S-4 Switcher	$241.89ea
NW2 Starter Sets	$333.89ea
Dockside Switcher	$448.89ea
Cars	
29ft Beer Can Tanker	$86.89ea
42ft Aluminum Tanker	$91.89ea
60ft Steel Box Car	$91.89ea
4 Bay Centerflow Hopper	$107.89ea
Bi-Level Auto Carrier	$183.89ea
40ft Box Car	$86.89ea
50 ft Box Car	$93.89ea
40ft Reefer Car	$93.89ea
50ft Mech Reefer Car	$103.89ea
Intermodal w/containers	$120.89ea
5 Unit Intermodal Car	$393.89ea
Ctr Cupola Caboose	$126.89ea
Train Power 10 amp	$143.89ea

Kadee Couplers

789, 830, 831, 920, 930, 1831	$6.69ea
Type E 906 –910	$6.89ea

Quantity Discounts Available!

Cordless Renovations Batteries

CR-1	Smart Charger	$110.89ea
1135	19.5v Nmih 5000ma	$121.89ea
1700	18.5v Lithium 2600ma	$96.89ea
1605	14.8v Lithium 5200ma	$86.89ea
1705	18.5v Lithium 5600ma	$134.89ea
C-10L	18.5v Lith Carrier Board	$279.89ea

AML BRASS TRACK

US or Euro Flex 72ft box	$336.89ea
US or Euro Flex 36ft box	$169.89ea
8ft Euro Curve	$146.89ea
10ft Euro Curve	$179.89ea
11.5ft Euro Curve	$210.89ea
20ft Euro Curve	$365.89ea
RLD 2 rail bender 332 or 250	$249.89ea

Splitjaw Clamps

B332SJC (10) Brass	$18.89ea
B332SJC (50) Brass	$85.89ea
B332SJC (10) SS	$24.89ea

Business Hours M - F 9:00am - 5:00pm CT
Toll Free 877-753-4629 * www.rldhobbies.com * rldhobbies@yahoo.com
332 Industrial Drive * Albion, IL 62806

WHERE CUSTOMER SERVICE COMES FIRST

WHERE CUSTOMER SERVICE COMES FIRST

WWW.RLDHOBBIES.COM WWW.RLDHOBBIES.COM WWW.RLDHOBBIES.COM WWW.RLDHOBBIES.COM

Fully escorted tours!

20th anniversary LGBTOURS 2012

Steam Paradise Saxony
Discover Saxony, rich in history and cultural heritage. Explore the cities of Dresden, Chemnitz and Meissen, worldwide known for its precious porcelain. You will ride nostalgic steam trains and take a romantic Elbe river cruise on board a historical steam paddleboat.

Scenic Tour of Germany, Austria & Hungary
Visits of the enchanting cities of the Danube Monarchy like Vienna, Salzburg, Bratislava, and Budapest as well as excursions with famous trains through the picturesque countryside are included. The steam train festival in Mondsee, a Danube River cruise, and a special tour of the **Märklin/Trix/LGB** factory in Györ complete this tour.

LGBTOURS

USA - "Colorado - Best of the West"
On this tour you will explore the Colorado Rockies, discover gold mining towns, visit fantastic National Parks and experience some of the Indian Culture. Exciting train rides i.e. with the Durango & Silverton, Cumbres & Toltec, and Rio Grande Railroad through the breathtaking scenery of the Wild West guarantee an eventful itinerary.

USA - "Indian Summer" (New York, Pennsylvania, West Virginia, North Carolina & Georgia)
Visit the major attractions of the world's most vibrant metropolis New York City before departing on a journey to experience the INDIAN SUMMER along the Appalachians and the Blue Ridge Mountains. Our journey will also include many well-known tourist railways, while traveling along some of the most spectacular scenic routes known for it's brilliant colors that will make this tour an unforgettable experience.

Highlights of Switzerland
Visit the charming cities of Zurich, Lucerne, Montreux, and Interlaken, beautifully situated in the heart of the Swiss Alps. A special train excursion with the Rhaetian Railway, celebrating the 100th anniversary of the Glacier Express route from Chur to Disentis, and many more rides on famous Swiss trains make this tour a highlight.

Magical Christmas Tour to Germany & Austria
On this tour you will have ample time to visit the enchanting Christmas markets in Nuremberg, Rothenburg, Würzburg, Regensburg, Munich, Salzburg, Linz, and Vienna with the aroma of ginger bread rising from the decorated stalls. Sightseeing tours of the medieval cities will introduce you to local handmade crafts. Amazing steam train excursions and visits of beautiful castles like Neuschwanstein are also included.

Photos by courtesy of the railways, photographers, and www.chistkindlmarkt.co.at, Salzburg.

Narrow Gauge Paradise - LGBTOURS
P.O. Box 19046 - Tampa - Florida 33686-9046
Tel: (813) 831-0357
E-mail: NGPAmerica@aol.com
www.LGBTours.com

LGBTOURS successful since 1992!

Custom Series
Standard Gauge
Engines
Rolling Stock
Accessories

Your Direct Line to the Complete Source of

GAUGE 1
1:32 Scale

A Masterpiece In Detail
These models are meticulously hand crafted from brass and stainless steel with superior detail. Features stainless steel wheels, sprung trucks, and metal frames. Detailed to perfection. Each car has separate road numbers.

Same Day Shipping!

CUSTOM MODEL PRODUCTS®
IMPORTER OF MUSEUM QUALITY MODELS

Flat Car – 40'
Union Pacific (Yellow)

IN STOCK!

1.800.443.8567

Please Visit Our *Recently Updated* Website at:
custommodelproducts.com
World Wide Distributor of Gauge 1 Models

VISA MasterCard DISCOVER

1:32 SCALE

Blend benchwork into your backyard

RUSS MILLER

1. Steve and Darci Smith's VdB Ry takes advantage of a pre-existing hedge and the prehistoric Mount Tamalpais in the background. No miniature plants needed here.

Sometimes the most expedient way to get your outdoor railway from point A to point B is on benchwork, so called because the height of the roadbed is similar to that of a workbench and facilitates the handling of trains and track. The many styles of benchwork construction seem to correspond to the skills of each builder, but here we'll focus on how to fit the snaking man-made tables into a pleasing landscape. After all, the successful acquisition of real estate for the railroad's right-of-way depends on a plan the whole family will like.

Hide the mechanics

The surveyors and civil engineers of the Vista del Bahia Railway (photo 1) rose to the challenge of respecting the integrity of the natural setting and lush gardens already in place. In fact, when trains aren't running, it's difficult to find the roadbed or see where its owners, Steve and Darci Smith, installed 300' of track. Much of the dual-track mainline seems to float along the top of a hedge.

Where the dogbone trackplan opens up to a loop, he needed another technique. On the bottom of his roadbed bench of ripped bender board (plastic lawn edging), mounted on metal fence stakes, he drills holes for wires to support clinging vines (photo 2). Along a fence, he arched a chicken-wire frame to support a tunnel of vines.

As our bodies age, our railways can evolve to keep us active in the hobby. By

PHOTOS BY THE AUTHOR EXCEPT WHERE NOTED

2. When you're passionate about running trains in your family's beautiful gardens, it helps to hide the mechanics of the benchwork. Steve shows how to make trackwork disappear amid passionflower vines.

Regional gardening reports

Zones listed are USDA Hardiness Zones

Question: What techniques help to keep the mystique alive when hiding the mechanics of your non-scale roadbed?

Doug Matheson
Manotick, Ontario, Canada, Zone 4
Multi-engineering

My prior experience of regularly running trains on a mostly elevated railroad influenced my decision to build elevated track—it makes operating and working on the railroad so much more pleasurable. But I also wanted a garden, to increase the pleasure of being in my own little world. Because of the rather ponderous look of pressure-treated 2 x 8" roadbed on 4 x 4" posts set into deck blocks within the garden, I've evolved four strategies for integrating the railroad:

- **Lattice.** In areas where the track must be handily reached, I've used a wooden lattice, often hiding parts or all of it with ferns (I garden in the shade, hence the choice of planting).
- **Terracing.** In other areas, I've raised the garden using walls, rockeries, or earthern berms.
- **Grading.** I've sloped the railway roadbed up on a more gentle angle where there is enough space.
- **Spanning.** Lastly, to avoid really extensive earthen berm-like gardens, I have spanned raised gardens with some lengthy bridges. In one place, a 16' span of four deck-girder bridges crosses my garden 30" above ground, while, in another place, a bridge made of three trusses spans 24' at a height of 20".

Ultimately, the goal is to provide a pleasing garden space in which to enjoy operating trains, hiding the unsightly heavy construction needed to achieve it.

DOUG MATHESON

A truss bridge spans two gardeny raised beds, then benchwork takes over (upper left), but it's surrounded with greenery.

Ray Turner
San Jose, California, Zone 9
It takes thyme

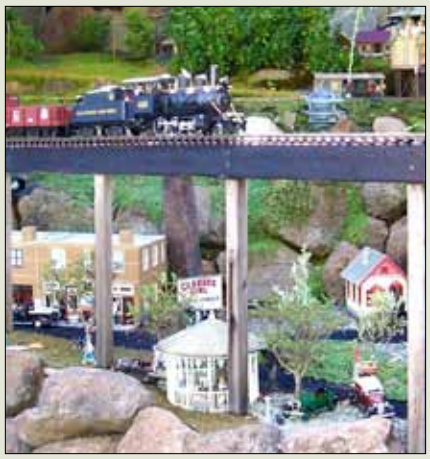
Mystic Mountain Railroad gains elevation on a steep part of my yard via a 4½-turn double helix in an area about 12' x 15'. I covered the visible part of the helix with concrete rock castings. While this is a point of high interest on the MMRR, it does create a large area of bare rock, and I wanted to soften it a bit. I chose to mount a planter on the backside (interior) of the rockwork, where it can't be seen from the front. I planted thyme, which will eventually hang over the edge of the rockwork to break it up with some green. The planter is fed from a drip-watering line with another tube for a drain to the ground, so it doesn't water the tracks below.

RAY TURNER

Thyme looks forward to draping over the vertical geodesic cliff on Ray Turner's line. Note the tracks inside the helix (top right).

Frank Lucas
Pleasant Hill, California, Zone 9
It takes two

I must admit that I was impatient to get a train running when we built our garden railroad, so I took many shortcuts (which I must now do over, the right way). I laid the track with little thought to greenery or scenery but I did get my little Mogul running around just 12 months after we started. One day, while I was happily doing this, Donna appeared with a paintbrush in one hand and a can of black paint in the other, and attacked the bender-board (plastic lumber) garden edging that I used to create the elevated section above the village. Voila! It is now a girder bridge that spans the open space and disappears beneath our Japanese maples.



FRANK LUCAS

The Lucases' scale village and pastoral scenery distracts from the benchwork but Donna's idea made a big difference, too.

Bill Hewitt
Mansfield, Massachusetts, Zone 5
Hedgerows

We used dwarf barberry to line the sides of our raised line in the European section of the Southpark & Dogbark Garden Railway. It requires frequent trimming to maintain but works beautifully to hide the raised roadbed. In other areas, a perimeter hedge of this thorny plant keeps our dogs at bay.

Christina Brittain
Washougal, Washington, Zone 6-7
Veering vines

Many annual vines, like nasturtiums, grow too large for our Quinn Mountain Railroad. However, there are a few with good scale proportions. Some climb with their own supports—twining stems or tendrils that easily ascend bare, vertical, metal and wood surfaces and trellises, or

BILL HEWITT

Dwarf crimson barberry (*Berberis thunbergii* 'Atropurpurea', Zones 4-8) is regularly clipped to a height of 18-22" to hide low benchwork on the S&DGR.

cascade down benchwork and rock walls.

Our favorite small vine is black-eyed Susan (*Thunbergia alata*, Zone 9-10), which produces black-centered yellow flowers until the fall frost. It takes heat well, full sun to part shade, and moderate water. Seeds can be started indoors in early spring or sown outdoors after the last frost; they may self-seed in zones warmer than Zone 5.

We discovered this vine after installing a unique curved stone as a short tunnel. We supported it over the tracks by drilling two holes (1" deep, 10" apart) into one end of its underside, driving ½" rebar into the ground, then setting the drilled holes onto the rebar. A narrow, vertical rock now disguises one rebar and a black-eyed-Susan vine the other.

CHRISTINA BRITTAIN

Black-eyed Susan vine hides the metal bars holding up a rock tunnel on the QMRR.

3. RIGHT: John and Janet Morrison re-landscaped their yard to include walkways along a raised-benchwork railway. Without landforms, making natural view blocks can be an awkward task on benchwork railways. Mature cutleaf Japanese maples, with the help of wire mesh and portals, create tunnels through green mountains.

4. Intricate details on the Morrisons' DNRy would be missed at ground level. At this height, viewers luxuriate in finding the whole story.

necessity and for the love of running trains, John and Janet Morrison retrofitted their gardeny, ground-level Dunckley Northern Railway (*GR*, June 2008) into a beautiful, all-benchwork railway. Shrubs and taller plantings replaced their low garden, although groundcover still flourishes between posts and pathways. Now Japanese maples, with their lacy leaves, provide a canopy over the roadbed in several areas, forming green tunnels (photo 3). Even their rail yard got a makeover on a chest-high platform (photo 4). It makes sense to place industries where plants can't grow. By consolidating the rail yard near the house, the busy scene captivates our attention and provides a handy transition from their indoor rail yard. As a bonus, the scale, post-raised office, water, and fuel tanks camouflage the fence.

After completing a miniature town for their Heavy Metal Railroad, Gary and Carol Garnas circled their yard with a long "fence" doubling as roadbed. You could say they hid the benchwork in plain sight because trestling fills the gaps between every post (photo 5). The fine trestlework scales down this rugged large-radius benchwork, and trains are assured a fast ride back to town.

Different like snowflakes

The regional gardening reports and photos 6 and 7 depict some of the many

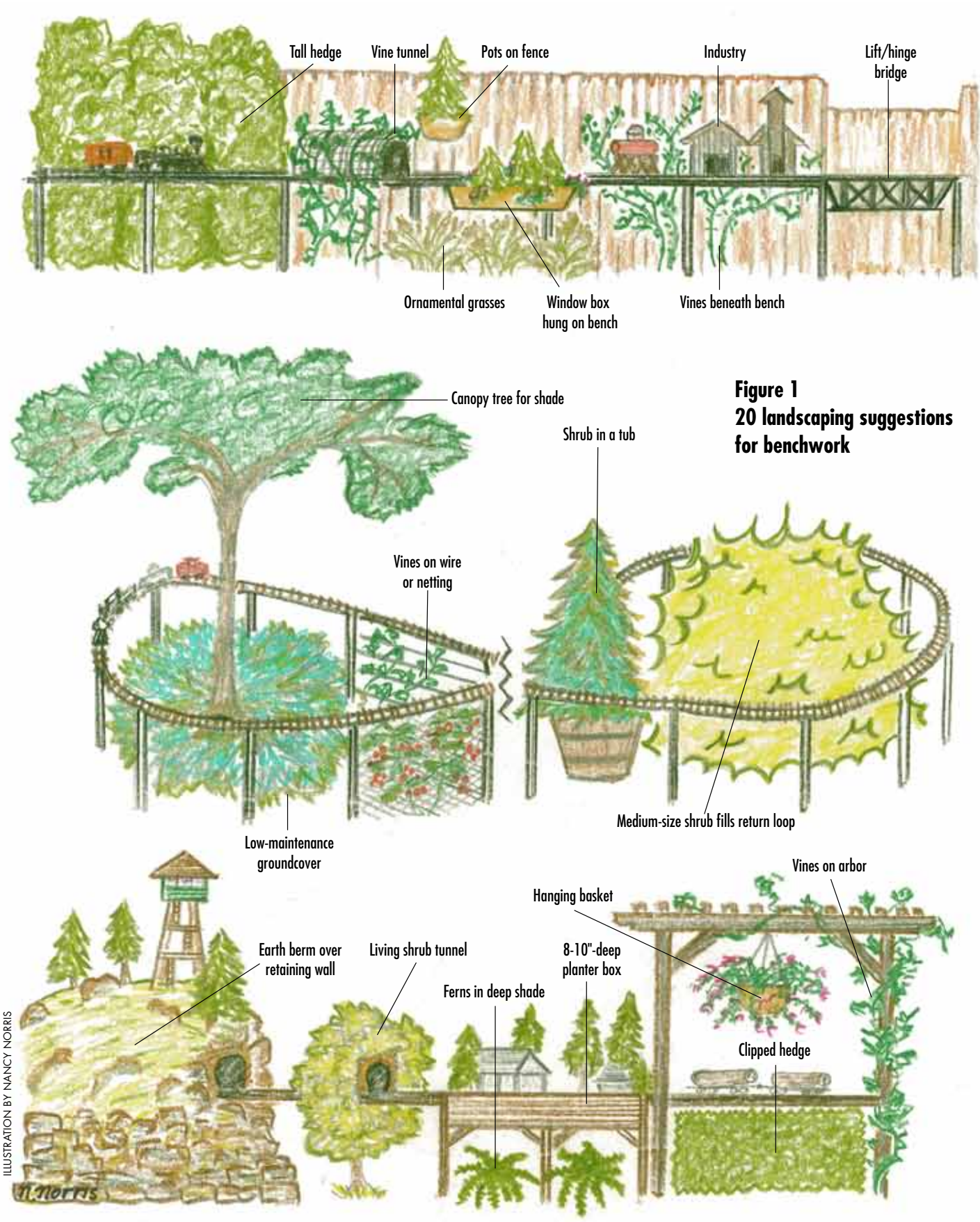


Figure 1
20 landscaping suggestions for benchwork

5. Gary and Carol Garnas disguised their benchwork with trestle work. Or did they beef up their trestle with 4x6s?

6. The Sunset Valley Railroad runs long trains on large-radius curves. Pete and Carol Comley mix up the benchwork look with several ideas found in Figure 1.

construction/planting choices, also sketched in figure 1. For example, Pete and Carol Comley's mostly benchwork railway needed access for the lawn mower, so they built an arched bridge over that opening in the lawn (photo 6). Then they planted their arborvitae hedge just behind the benchwork in this sunny spot and grew ivy vines on a shaded fence.

Conversely, Pat and Jo Ann Peterson run trains just behind their clipped hedge (photo 7). From that benchwork, curved girder bridges turn the trains past a wooded garden on the way to more benchwork along the house, where trains travel through the guest bedroom.

Dave Hartwig needed a spur to show off his detailed logging industry, so he built a raised planter box along a walkway (photo 8). With no room for an earthy landmass, the gardener in him built the box strong enough to plant trees around the sawmill and greened it underneath with ferns.

Plumbers will use PVC pipe for posts, carpenters will choose pressure-treated wood, welders like metal, and the handyman will find something stashed in the shed on which to run trains. It's up to you—hide the sub-roadbed or flaunt it. Take a look at your specific needs and where the train has to go, to make it as accessible and pleasing, as your purse allows.

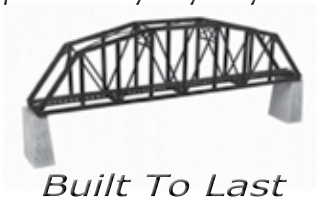
7. ABOVE: Pat and Jo Ann Peterson's O-scale railway travels along a 60' (or so) stretch of benchwork hidden by a long clipped hedge. Benchwork can become good girder bridges with details, like vertical bolt plates and the railway's name—here Pacific Rim.

8. RIGHT: Dave and Peggy Hartwig's Hilary Logging Company branches onto a box made of pressure-treated plywood and 2 x 4s. The soil measures 7" deep. A guest tests its 1:1 strength.

Earth islands

View a gardeny railway of raised planter "islands" growing miniature scenery. Larry Staver's Steamup hosted dozens of steamheads. They ran their live-steam trains from indoor benchwork onto outdoor benchwork, which bridged mountain scenes built on affordably constructed retaining walls.
http://youtu.be/_9ashTZMVoo

LGB®
We Buy Collections
LGB Repair Center
800-542-7652
WattsTrainShop.com

EAGLEWINGS IRON CRAFT
"Spend wisely buy only once!"

Built To Last
www.eaglewingsironcraft.com

Fall Creek Railroad Structures

Do you have yours?
Our Turntable is the finest addition you can make to your railroad!
Gallows Turntable©
Complete with pit and ready to install!
We also offer the finest in R/C and sound.
Battery Power & Radio Control
fcwrr@aol.com • 1-877-806-6633
Proudly serving the Large Scale Hobby since 1994

Small details for large trains can make a HUGE difference!
Check out all our great selection of G scale details at:
www.caboosehobbies.com
CABOOSE HOBBIES®
THE WORLD'S LARGEST MODEL TRAIN STORE
www.caboosehobbies.com

NANCY NORRIS

Perennial

Common name: Sweet woodruff

Latin name: *Galium odoratum*, syn. *Asperula odorata*

USDA Hardiness Zones: 4-9 (sheltered or near the house in Zone 3)

Cultural needs: Shade or partial shade, moist (even wet) soil

Plant size: 6-12" high, spreading quickly to 9-12" wide

Do you have a rather large shady spot in need of an easy perennial groundcover? Hailing from Europe, sweet woodruff may be a good candidate. Some gardeners find it invasive but, knowing that, give it some space to spread and choke out pesky weeds. Masses of fluffy green leaves rise too far above the ground to use next to buildings or track unless the track is raised about a foot, as in the photo. Otherwise, plant sweet woodruff alongside trestles; under full-scale trees, where it can replace costly mulch; or in the background to suggest a deciduous forest of palm-like trees. Plant this vigorous perennial on hillsides to control erosion. By interplanting spring bulbs among sweet woodruff, the yellowing bulb leaves will be hidden, once they have bloomed. In colder climates, galiums die to the ground but, in milder climates, the leaves stay green all winter, flattening out in spring when new growth emerges. By late spring, starry white flowers cover the plants like a dusting of snow. The "sweet" in its name comes from the scented, dried foliage, a traditional stuffing for pillows and mattresses, along with its cousin, lady's bedstraw (*Galium verum*). Deer and rabbits dislike the honey odor. Purchase plants at most nurseries.

It's time for Thyme!
We ship anywhere in the continental U.S.A.!
Photo catalog $5
Pictured: Woolly Thyme
LiveScale dwarf plants for garden layouts: Mini Trees, Conifers, Alpines, Ground-covers and more!
Mini Forest by Sky
Post Office Box 1156, Mulino, OR 97042
Phone/Fax: 503-632-3555
See our new online catalog with one-click shopping at
www.miniforest.com

LGB AMERICAN

TRAINWORLD®
ORDERS ONLY 1-800-541-7010

LGB AMERICAN

Full Line G Scale Price List Comes with Every Order

#72441 SANTA FE RAILROAD STARTER SET with SMOKE
SALE $429.99 NEW!

#72302 PASSENGER STARTER SET W/SOUND
SALE $417.99

#72302RED ALL RED PASSENGER STARTER SET W/SOUND
SALE $417.99 NEW!

#72403 FREIGHT TRAIN STARTER SET W/SOUND
SALE $417.99

#72400 FULL GAUGE RAILROAD STARTER SET
SALE $335.99

#25554 WHITE PASS & YUKON ALCO DIESEL
SALE $1,049.99 NEW!

#23881 UINTAH STEAM LOCOMOTIVE NO.50
SALE $689.99 HOT! NEW!

#25196 D&S MOGUL NO. 376
SUPER SALE $599.99 HOT! NEW!

#26253 WHITE PASS & YUKON FORNEY
SALE $399.99 NEW!

#23196 C&S MOGUL NO 9
SALE $686.99 NEW! HOT!

#25253 RIO GRANDE FORNEY NO. 252
SALE $389.99 NEW!

#23892 SUMPTER VALLEY 2-6-6-2 MALLET HEAVY STEAM
SALE $1,799.99 NEW!

PIKO #38210 DENVER & RIO GRANDE MOGUL & TENDER
SALE $171.99 NEW!

#69572 TENDER W/SOUND
SALE $284.99

#21576 SANTA FE F7 A DIESEL
SALE $742.99 NEW!

#21586 SANTA FE F7 B-UNIT with SOUND, Non-Powered
SALE $599.99 NEW!

#20576 SANTA FE F7 A DIESEL, NO. 330
NEW! SALE $742.99

#20577 SANTA FE F7 A DIESEL, NO. 333
NEW! SALE $742.99

#20586 SANTA FE F7 B-UNIT with SOUND, Non-Powered
SALE $599.99 NEW!

PIKO TAURUS ELECTRIC
#38410 AMTRAK #1217
#38411 AMTRAK #1218
SUPER SALE $224.99 EA. NEW!

#30803 DURANGO & SILVERTON COACH
SUPER SALE $74.99 NEW!

#30813 DURANGO & SILVERTON COMBINE
SALE $101.99 NEW!

#30843 DURANGO & SILVERTON BAGGAGE
SALE $112.99 NEW!

#32050 SANTA FE BAGGAGE
SALE $95.99

#36064 SANTA FE COACH, CIMARRON
SALE $95.99

#3084DG WILSON BROS. CIRCUS BAGGAGE CAR
SALE $89.99

SHOP ON-LINE 24/7,
ALL NEW AT
trainworld.com
- *More Product*
- *Consumer Friendly*
- *Easy Search*

Best Deals, Service Selection

#36570 SANTA FE STREAMLINER PASSENGER CAR
SALE $397.99 NEW!

#36571 SANTA FE STREAMLINER PASSENGER CAR
SALE $397.99 NEW!

#36580 SANTA FE STREAMLINER VISTA DOME
SALE $427.99 NEW!

#36590 SANTA FE STREAMLINER OBSERVATION
SALE $449.99 NEW!

#43900 SP COMPOSITE BOXCAR
SUPER SALE $59.99

#41675 WHITE PASS & YUKON BOXCAR, No. 742
SALE $112.99 NEW!

#40806 C&S CONOCO TANK CAR, No. 5
SALE $101.99 NEW!

#41853 TTX K-LINE CONTAINER CAR
SALE $112.99 NEW!

#45919 SANTA FE BOXCAR
SALE $112.99 NEW!

#47917 UNION PACIFIC H.E.R.B.I.E. BOXCAR
SUPER SALE $74.99 NEW!

#44540 UNION PACIFIC BULKHEAD FLAT
SUPER SALE $79.99 NEW!

#48680 SOUTHERN PACIFIC STOCK CAR
SUPER SALE $74.99 NEW!

#47723 NEW YORK CENTRAL REEFER
SALE $112.99 NEW!

#41803 COLORADO & SOUTHERN GREEN TANK CAR, NO. 9
SALE $101.99 NEW!

#43653 BOBBER CABOOSE
SUPER SALE $99.99 NEW!

#46919 PENNSYLVANIA SINGLE DOOR BOXCAR
SALE $104.99 NEW!

#42792 WHITE PASS & YUKON STEEL CABOOSE
SALE $129.99 NEW!

#43543 TTX CONTAINER CAR
SALE $127.99 NEW!

COCA-COLA® FREIGHT CARS
SUPER SALE $50.00 EA.
#42910 "Can't Beat the Real Thing" BOXCAR
#42911 "Always the Real Thing" BOXCAR

#41911 CAMPBELL'S BOXCAR
SALE $99.99

HUGE SELECTION
LGB, BACHMANN, MTH, ARISTO
- *Steam Locomotives*
- *Diesel Locomotives*
- *Passenger Cars*
- *Freight Cars*

ON-LINE
WITH PICTURES
trainworld.com

#48404 UNION PACIFIC TANK CAR
BLOWOUT $49.99

#47820 BALTIMORE & OHIO CENTER FLOW HOPPER
SALE $104.99 NEW!

#45870 HOOKER CHEMICALS TANK CAR
SALE $104.99 NEW!

#40853 TTX HANJIN CONTAINER CAR
SALE $116.99 NEW!

#45683 COLORADO & SOUTHERN STOCK CAR, NO. 708
SUPER SALE $74.99 NEW!

#45672 LAUGHING BOXCAR, SOUND
BLOWOUT $79.99

Sign Up for E-Mail Sales & News
On our website and receive by e-mail extra discounts, specials and super sale items

IF YOU DON'T SEE IT ADVERTISED HERE — CALL US WITH THE STOCK NUMBER OR ORDER ON-LINE. NOW TAKING BACKORDERS ON NEW RELEASES.

THE PRODUCTS WE SELL ARE NOT TOYS AND ARE NOT INTENDED FOR USE BY CHILDREN UNDER THE AGE OF 14. THESE PRODUCTS ARE MODEL RAILROAD EQUIPMENT & ACCESSORIES AND ARE INTENDED FOR USE BY ADULTS.

TRAINWORLD® TRAINLAND®
TOLL FREE 1-800-541-7010 INFO 1-718-436-7072 MON-SAT 10-6
751 McDonald Ave. Brooklyn, NY 11218 E-MAIL: orders@trainworld.com
www.trainworld.com ONLINE SHOPPING: www.trainworldonline.com

- 15% Re-Stocking Fee on returns 02/12F
- Minimum UPS standard shipping & handling charge $12.95
- Prices are subject to change without notice
- Limited Quantities All Rights Reserved

TRAINWORLD TRAINLAND WE SUPPLY THE WORLD

BACHMANN G SCALE LARGE TRAINS

TRAINWORLD®
ORDERS ONLY 1-800-541-7010

#80996 2-4-4 FORNEY
SANDY RIVER OR PAINTED/UNLETTERED
SUPER SALE $499.99
SUPER SALE!

#91196 2-4-2 STEAM LOCOMOTIVE
Assorted Roads
$179.99
NEW!

#91601 4-6-0 STEAM LOCO W/TENDER & LIGHT, SMOKE & SYNCHRO SOUND SALE
$219.99 Ea.
SMOKE
SOUND
NEW!
Assorted Roads

#91552 2-6-0 INDUSTRIAL LOCOMOTIVE WITH SMOKE & SOUND
Assorted Roads
$164.99
SMOKE
SOUND
NEW!

#83093 K27 STEAM LOCOMOTIVE, DCC READY SUPER SALE $698.99 EA.
SCALE, WIDE RADIUS REQUIRED
RIO GRANDE
RIO GRANDE SOUTHERN
PAINTED UNLETTERED
HOT!
LIMITED QUANTITY AVAILABILITY ON THE FIRST RUN

#82596 0-4-0 PORTER STEAM STARTING AT $109.99
ASSORTED ROADS

#82394 RAIL TRUCK W/ACCESSORIES SALE STARTING AT $129.99

#91395 DAVENPORT 0-4-0 SIDE ROD SUPER SALE $99.99

#82894 SPECTRUM 2-6-6-2 SADDLE TANK, DCC READY Assorted Roads
STARTING AT
$549.99

#86093 2-TRUCK CLIMAX WITH SOUND
Assorted Roads
$795.00
NEW!
SOUND

#85093 2-TRUCK CLIMAX
Assorted Roads
$695.00
NO SOUND

#82494 3-TRUCK SHAY DCC ON-BOARD **SUPER SALE STARTING AT $399.99**
SUPER SALE!

#82697 55Ton 3-TRUCK SHAY DCC & SOUND ON-BOARD SUPER SALE STARTING AT $499.99
#88999 Die-Cast Shay Power Trucks 1/pair $159.99

#81295 BACHMANN 2-8-0 CONSOLIDATION W/TENDER STARTING AT $275.00
Deadwood, WP&Y, Silverton, Unlettered, Yellow Pine
BLOWOUT!

#81397 SPECTRUM 4-4-0 STEAM ENGINE & TENDER
Starting At $349.99
BLOWOUT!
Assorted Roads

#81495 SPECTRUM 2-6-0 MOGUL STARTING AT $275.00
BLOWOUT!
Assorted Roads

#92502 SIDE DUMP ORE CAR
$30.99 EA.

#98500 WOOD ORE CAR
$44.99 Ea.
Assorted Roads

#92503 WOODSIDE DUMP CAR
$30.99 EA.

#92504 V DUMP CAR
$30.99 EA.

IF YOU DON'T SEE IT ADVERTISED HERE — CALL US WITH THE STOCK NUMBER OR ORDER ON-LINE.

THOMAS AND FRIENDS

#97003 EMILY'S COACH
$44.99

#97004 EMILY'S BREAK COACH
$44.99

OPEN STREET CAR
$89.99 Ea.
93937 Maroon/Beige
93938 Yellow/Beige
NEW!

#93939 CLOSED STREET CAR
$89.99

#93941 CHRISTMAS CLOSED STREET CAR SALE $109.99

HAND CAR W/TRAILER
#96201 GRAY
#96202 YELLOW
$74.99 Ea.

#96241 X-MAS HAND CAR $84.99

SPECTRUM JACKSON SHARP PASSENGER CARS WITH TRACK POWER LIGHTING
PRR, EBT, D&RGW, SP Coast., ET&WNC, White Pass

89091 Coach . . . . . EA. 59.99
89092 Combine . . . . . EA. 59.99
89093 Full Baggage . . . . EA. 59.99
89094 Observation . . . . EA. 64.99

#89093 D&RG Baggage Car
SUPER SALE $24.99
SALE!

#98381 CIRCUS FLAT WITH 2 CAGES
BEAR & GORILLA
SALE $64.99

#98382 CIRCUS FLAT WITH 2 CAGES
GIRAFFE & HIPPO
SALE $64.99

#97381 PERFORMER'S OBSERVATION
$64.99

CIRCUS ITEMS

98379 Circus Tent Car . . . . . SALE 59.99
98380 Circus Pole Car . . . . . SALE 49.99
98383 Circus Water Tank Car . SALE 44.99
98384 Stock Car with Zebra . . SALE 39.99
98385 Circus Caboose . . . . . SALE 39.99

#98600 BILLBOARD REEFERS
Assorted Roads
$46.99 Ea.

#93250 REEFERS
Assorted Roads
$44.99 Ea.

ACCESSORIES
88017 K-27 Dogouse w/Interior . . . 14.99
992420 6 Pr. Knuckle Couplers . . . 16.99
92421 Metal Wheels, 4-Axels . . . 16.99
92422 Small Metal Wheels, 4-Axles 16.99

NOW TAKING ORDERS ON NEW RELEASES

THOMAS AND FRIENDS

#91401 THOMAS THE TANK LOCO W/MOVING EYES $129.99
NEW!

#90068 THOMAS W/ANNIE & CLARABEL SET $199.99

#90069 PERCY & TROUBLESOME TRUCKS SET 199.99
#91402 PERCY LOCOMOTIVE W/MOVING EYES . .129.99
#91403 JAMES THE RED ENGINE W/MOVING EYES 169.99
#97001 ANNIE COACH 44.99
#97002 CLARABEL COACH 44.99
#97003 EMILY'S COACH 44.99
#97004 EMILY'S BREAK COACH 44.99
NEW!

#98001 TROUBLESOME TRUCK #1 . . .44.99
#98002 TROUBLESOME TRUCK #2 . . .44.99
#98003 COAL WAGON WITH LOAD . . .41.99
#98004 SODAR FUEL TANK 41.99
#98005 TIDMOUTH MILK TANK 41.99
#98006 CARGO CAR 41.99
#98007 OIL TANK CAR 41.99
#98009 TAR CAR 41.99
NEW!

STARTER SETS with TRACK & TRANSFORMER

90033 ET&WNC FREIGHT SET (TWEETSIE) .219.99
90037 NIGHT BEFORE CHRISTMAS FREIGHT SET . .189.99
90048 MOUNTAINEER PASSENGER SET . . .209.99
90049 BIG TOP CIRCUS TRAIN SET . . .159.99
90050 SILVERADO FREIGHT TRAIN SET .209.99
90055 PIONEER FREIGHT SET 159.99
90056 SUMMIT PASS FREIGHT SET . . .159.99
90057 DURANGO & SILVERTON FREIGHT SET . .184.99

90058 DURANGO & SILVERTON PASSENGER SET . .209.99
90059 WHITE PASS & YUKON PASSENGER SET .229.99
90068 THOMAS W/ANNIE & CLARABEL SET 209.99
90069 PERCY & TROUBLESOME TRUCKS SET 209.99
90070 PROSPECTOR FREIGHT SET 189.99
90071 LUMBERJACK FREIGHT SET 184.99
90076 WHITE CHRISTMAS EXPRESS SET **NEW** 209.99
90078 THE PLAINSMAN SET . . . **NEW** 184.99
90082 PENNSYLVANIAN PASSENGER SET .209.99

FINE DETAILING ROLLING STOCK
SCALE, 8' WIDE RADIUS REQUIRED
ASSORTED ROADS
NEW!
NEW!

STARTING AT

#88096 FINE SCALE BOXCARS . . .124.99
#88396 FINE SCALE FLATCARS 59.99
#88695 BOXCAR W/MURPHY ROOF .124.99
#88996 FINE SCALE 2-BAY HOPPER . .99.99

STARTING AT

#88195 FRAMED TANKCARS 129.99
#88296 LOW SIDED GONDOLAS 99.99
#88495 FRAMELESS TANKCARS . . .129.99
#88795 LIGHTED LONG CABOOSE .174.99

MOST ITEMS HAVE ASSORTED ROADNAMES - OUR ON-LINE CATALOG SHOWS ALL ROADNAMES

SUPER SALE KITS
Assorted Styles

#89491 Passenger Car KITS STARTING AT $41.99
#98911 Rolling Stock Freight Car KITS, W/Metal Wheels
SUPER SALE STARTING AT **$24.99**

#93430 TANK CARS
Assorted Roads
$46.99 Ea.

Tidewater $29.99

#93340 BOX CARS
Assorted Roads
$44.99 Ea.

#98110 STOCK CAR
Assorted Roads
$44.99 Ea.

#93100 BOBBER CABOOSES
Assorted Roads
Starting At
$21.99 Ea.

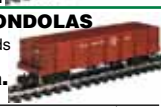
#93800 CABOOSES with CENTER CUPOLA & INTERIOR
Assorted Roads
$62.99 Ea.

Ely Thomas Lumber Co. . . .$39.99

#93170 UNDECORATED LOGGING CABOOSE
$21.99

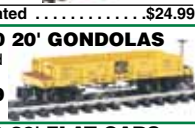
#98202 HOPPERS
Assorted Roads
$44.99 Ea.

#93740 GONDOLAS
Assorted Roads
$44.99 Ea.



Undecorated $24.99

#95300 20' GONDOLAS
Assorted Roads
$44.99 Ea.



#95300 20' FLAT CARS
Assorted Roads
$44.99 Ea.

Ely Thomas $29.99

#95300 20' BOX CARS
Assorted Roads
$44.99 Ea.

#95699 20' LOG CAR W/LOG SKIDDER & CRATES
$64.99
NEW!

#92699 LOG SKIDDER NEW SALE $34.99

#98490 SHORT LOG CAR W/LOGS
$44.99

#98470 LONG FLAT CAR W/LOGS
$44.99

THE PRODUCTS WE SELL ARE NOT TOYS AND ARE NOT INTENDED FOR USE BY CHILDREN UNDER THE AGE OF 14. THESE PRODUCTS ARE MODEL RAILROAD EQUIPMENT & ACCESSORIES AND ARE INTENDED FOR USE BY ADULTS.

SEND MAIL ORDER TO:
TRAINWORLD®
751 MCDONALD AVE.
BROOKLYN, NY 11218
TRAINLAND®
293 SUNRISE HIGHWAY
LYNBROOK LONG ISLAND, NY 11563
AMERICA'S LARGEST DISCOUNT TRAIN STORES

MASTERCARD-VISA-DISCOVER-AMEX
NY residents add applicable sales tax
Minimum Order $25.00 plus shipping
Minimum UPS Standard Shipping & Handling $12.95
Parcel Post, Canada & Overseas, Min. $24.95
For Larger Orders, Estimate Additional Shipping.
MON - SAT 10-6 Showroom

Prices subject to change, limited quantities, rights reserved. Not responsible for typographic errors. Prices are for Mail Orders Only.

FOR ORDERS ONLY: 02/12F
CALL TOLL FREE **1-800-541-7010**
For prices & Info Call: (718) 436-7072

10 DAY EXCHANGE POLICY MUST BE NEW!
15% RESTOCKING CHARGE ON APPROVED RETURNS.
SHIPPING CHARGES ARE NON-REFUNDABLE!

www.trainworld.com E-MAIL orders@trainworld.com
ONLINE SHOPPING: www.trainworldonline.com

24 HR. FAX ORDERS 1-718-972-8514

TRAINLAND TRAINWORLD WE SUPPLY THE WORLD TRAINLAND TRAINWORLD TRAINLAND

ARISTO-CRAFT TRACK

USA STYLE		SOLID BRASS RAIL	EURO STYLE	
30030	82.99	STRAIGHT TRACK 1' (12)	11000	82.99
30031	43.99	STRAIGHT TRACK 1/2	11001	43.99
30033B	56.99	STRAIGHT TRACK TIES 1' BULK	11003B	56.99
		FLEX TRACK TIES 1' BULK	11004B	56.99
		FLEX RAIL 8' 12 PC	11005	282.99
		BUMPER W/O TRACK, LIGHTED	11031	8.99
30060	164.99	STRAIGHT TRACK 2'	11060	164.99
30090	247.99	STRAIGHT TRACK 3'	11070	247.99
		20" DIAMETER CIRCLE OF TRACK	11140	71.99
		31" DIAMETER TRACK FOR BARREL	11145	81.99
30100	82.99	CURVE TRACK 4'	11100	82.99
30101	43.99	CURVE TRACK 1/2 SECTION	11101	43.99
30103B	56.99	CURVE TRACK TIES BULK	11103B	56.99
30110	114.99	CURVE TRACK 5' (12)	11500	114.99
30112	150.99	CURVE TRACK 6.5'	11550	150.99
30115	184.99	CURVE TRACK 8' (16)	11600	184.99
30116	207.99	CURVE TRACK 9'	11700	207.99
30120	227.99	CURVE TRACK 10' (12)	11800	227.99
30121	264.99	CURVE TRACK 11.5'	11801	264.99
30122	285.99	CURVE 12.5' DIAMETER	11802	285.99
30123	321.99	CURVE 14' DIAMETER	11803	321.99
30124	342.99	CURVE 15' DIAMETER	11804	342.99
30125	459.99	CURVE TRACK 20' DIAMETER	11820	459.99
30126	229.99	CURVE TRACK 20' 6 PIECES	11821	231.99
30130	365.99	CURVE 16.5' DIAMETER	11805	371.99
30194	228.99	STRAIGHT TRACK 5' (6)	11098	228.99
30195	434.99	STRAIGHT TRACK 5' (12)	11099	434.99
30196	197.99	72" STRAIGHT TRACK(6)	11095	197.99
30197	396.99	72" STRAIGHT TRACK (12)	11096	396.99
		RAIL JOINERS (12)	11900	6.99
		RAIL JOINERS (50)	11900B	18.99
		RAIL JOINERS/PLASTIC (4PK)	11901	4.99
		RAIL JOINERS/PLASTIC (25PK)	11901B	23.99
30199	145.99	REVERSING UNIT		
		REVERSING SYSTEM W/BUMPER	11090	98.99
		REVERSING UNIT/SOFST ONLY	11091	54.99
30300	35.99	SWITCH MANUAL RIGHT	11200	35.99
30310	45.99	SWITCH RIGHT REMOTE	11205	45.99
30330	134.99	#6 SWITCH RIGHT REMOTE		
30335	30.99	#6 PARALLEL ADAPTOR		
30340	134.99	#6 SWITCH REMOTE LEFT		
30345	93.99	#6 WYE SWITCH SS		
30350	35.99	SWITCH MANUAL LEFT	11210	35.99
30360	45.99	SWITCH REMOTE LEFT	11215	45.99
		MANUAL SWITCH MACHINE	11297	8.99
		SLOW MOTION SWITCH MACHINE	11298	15.99
		RE-RAILER	11350	17.99
		RE-RAILER W/I GAP & DIODES	11351	17.99
		RAMP TRACK LOADER	11352	17.99
30370	58.99	SWITCH WIDE MANUAL RIGHT		
30375	17.99	SIDING FOR 10' DIAMETER SWITCH		
30380	58.99	SWITCH WIDE MANUAL LEFT		
30400	53.99	CROSSING 19.5		
30405	28.99	CROSSING 30 DEGREE	11300	35.99
30410	35.99	CROSSING 90 DEGREE		
30500	78.99	EXTENDER TRACK SET #1	12091	89.99
30550	125.99	EXTENDER TRACK SET #2	12092	143.99
30560	141.99	EXTENDER TRACK SET #3	12093	160.99
		WATERPROOF MICRO SWITCH (2)	11903	8.99
		STATIONARY ROLLERS (4PK)	11905	40.99
		HEX-HEAD REPLACEMENT SCREWS (50)	11910	4.99
		RAIL TO TIE SCREWS (50)	11911	5.99
		RAIL CLAMP (10)	11930	10.99
		RAIL CLAMP (100)	11930B	89.99

See Complete Track Listings On-Line
www.trainworld.com

ROLLING STOCK RIOT

40' DOUBLE DOOR BOXCARS

SUPER SALE $44.99 EA.
REG. $104.00

#45104 ATLANTIC COAST LINE

#45115 WESTERN MARYLAND

#45110 NORFOLK & WESTERN

#45116 ERIE

40'PLUG DOOR BOXCARS

#45201 NEW HAVEN

#45207 SANTA FE

40' STEEL BOXCAR

BLOWOUT $49.99 EA.
REG. $90.00 EA.

#46045 BESSEMER & LAKE ERIE

#46063 BURLINGTON NORTHERN

#46056 SOUTHERN

REFRIGERATOR CARS

46224 WEST INDIA FRUIT
46259 BURLINGTON
46260 CHICAGO & NORTHWESTERN

BLOWOUT!

REG. $90.00 EA.
BLOWOUT $39.99 EA.

#46101 ARMOUR MEATS 40' STOCK CAR

BLOWOUT $39.99

BLOWOUT!

REG. $90.00

#46085 ARISTO-CRAFT STEEL BOXCAR

BLOWOUT $45.00

REG. $59.99

4 DIFFERENT ROAD NUMBER REEFERS W/METAL WHEELS

BLOWOUT 4/$209.99

46201D P.F.E.
46261D P.F.E. SIGNAL HERALD

REG. 4/$466.00

WE ALSO CARRY WOODLAND SCENICS FIGURES & SCENERY, KADEE AND SPLIT JAW

ARISTO-CRAFT CLASSICS

#46225 CHRISTMAS REEFER

REG. $63.99
BLOWOUT!
BLOWOUT $48.99

#46211 STEWERT'S ROOT BEER REEFER

BLOWOUT $49.99
REG. $90.00

SCALE 2-4-2 ROGERS with FREE MATCHING BOBBER CABOOSE

21002 RIO GRANDE
21004 SANTA FE
21104 SANTA FE

REG. $379.99
BLOWOUT!
BLOWOUT $169.99 EA.

#29002 NEW YORK CENTRAL "PACEMAKER" 6-PIECE PRIME MOVER SET

SALE!

BLOWOUT $399.99

SET INCLUDES:
1 RS-3 DIESEL
4 BOXCARS, Different Numbers
1 LONG STEEL CABOOSE
REG. $549.99

#23509 GRAND TRUNK EMD GP-40, ROAD NUMBERS 6401 OR 6403

BLOWOUT!

BLOWOUT $209.99 EA.
REG. $423.00 EA.

#23511 BOSTON & MAINE EMD GP-40

REG. $423.00
BLOWOUT!
BLOWOUT $189.99

#23614 ERIE LACKAWANNA E-8

MSRP $552.00

BLOWOUT $239.99
BLOWOUT!

Actual Product Not Shown

#23619 SANTA FE E-8, PAINTED VERSION

BLOWOUT!
MSRP $552.00
Actual Product Not Shown

BLOWOUT $239.99

#23615 ERIE E-8

MSRP $552.00
BLOWOUT!

BLOWOUT $239.99

Actual Product Not Shown

ARISTO #23606 CANADIAN PACIFIC E-8

REG. $480.00
BLOWOUT $239.99

BLOWOUT!

ARISTO #21850 UNDECORATED LONG VANDY TENDER

REG. $185.00
BLOWOUT $75.00

ARISTO 3-CAR SIERRA SET

BLOWOUT $239.99 EA. SET

REG. $527.99

EACH SET INCLUDES:
1 COMBINE
1 COACH
1 OBSERVATION

BLOWOUT!

31001-3 PENNSYLVANIA
31002-3 BALTIMORE & OHIO
31005-3 SANTA FE
31009-3 WHITE PASS & YUKON

ARISTO SIERRA COACH

REG. $176.99
BLOWOUT!
BLOWOUT $79.99 EA.

31001 PENNSYLVANIA
31002 BALTIMORE & OHIO
31004 DRG,YELLOW
31005 SANTA FE
31009 WHITE PASS & YUKON
31011 DRG, GREEN

ARISTO BLOWOUT

4-CAR HEAVYWEIGHT SET

NOW ONLY $599.99 EA. SET

BLOWOUT!

EACH SET INCLUDES:
1 RPO
1 COMBINE
1 DINER
1 OBSERVATION

REG. $1,334.99

31905 SOUTHERN CRESCENT
31908 UNION PACIFIC
31910 SP DAYLIGHT
31932 NAPA VALLEY

ARISTO-CRAFT CLOSEOUTS

CLASS 66 LOCOMOTIVES

SUPER SALE!

#23211 FREIGHTLINER
#23212 GBRF UNION JACK LIVERY
#23213 EWS

- ABS Body with Realistic Livery
- Twin Motors
- Ball Bearings on Axles
- Smoke Unit (Oil extra cost)
- Opening Doors
- LED Directional Lights
- Speaker and Wiring Ready for Addition of Sound Card
- Wired for Plug and Play Revolution Receiver and Battery Power
- Wheels Designed for G Scale Track, 8' MINIMUM DIAMETER CURVE REQUIRED

SUPER SALE $424.99 EA.
MSRP $799.99 EA.

#23215 DB SCHENKER

#23214 DIRECT RAIL SERVICES

INTERMODAL FLATS WITH CONTAINERS, (2)

REG. $299.99

50802 ECS
50803 MALCOM LOGISTICS

SALE $194.99 EA. SET

#7402 TUNNEL PORTAL (2)

BLOWOUT!

BLOWOUT $20.99 REG. $55.00

#7403 WING WALLS for Tunnel Portal (2)

BLOWOUT!

BLOWOUT $39.99 REG. $104.00

ARISTO CLASSICS #83115 UNION PACIFIC RAILBUS with SIERRA PASSENGER COACH

REG. $380.00
BLOWOUT $175.00

BLOWOUT!

ARISTO CLASSICS REEFER

86202 C&S
86207 WPY

REG. $72.99
BLOWOUT $33.00 EA.

ARISTO CLASSICS WOOD BOXCAR

BLOWOUT $30.00

86007 WPY

REG. $66.99

ARISTO CLASSICS #41024 DROP END GONDOLA

BLOWOUT $43.99

REG. $86.99

ARISTO CLASSICS LONG CABOOSE WITH LIGHTS

REG. $132.99

82102 COLORADO & SOUTHERN
82114 DENVER RIO GRANDE

BLOWOUT $58.99 EA.

40' DOUBLE DOOR BOXCARS WITH METAL WHEELS

BLOWOUT $44.99 EA.
REG. $61.99 EA.

#45196CD US MARINE CORPS (DODX)

#45194CD US AIR FORCE (DAFX)

#45197CD US NAVY (USN)

WHITE PASS & YUKON FREIGHT CAR BLOWOUT

BLOWOUT $23.99 EA.
REG. $53.99 EA.

#42215 WP&Y BOBBER CABOOSE

#40115 WP&Y 20' TANK CAR

VIEW OUR PRODUCT CATALOG ON-LINE AT www.trainworld.com

TRAINWORLD®/TRAINLAND®
TOLL FREE 1-800-541-7010
www.trainworld.com
ONLINE SHOPPING: www.trainworldonline.com

Minimum UPS standard shipping & handling charge $12.95.
Limited Quantities. All rights reserved.
15% Restocking Fee on Approved Returns
Prices Subject to Change Without Notice. 02/12F

THE PRODUCTS WE SELL ARE NOT TOYS AND ARE NOT INTENDED FOR USE BY CHILDREN UNDER THE AGE OF 14. THESE PRODUCTS ARE MODEL RAILROAD EQUIPMENT & ACCESSORIES AND ARE INTENDED FOR USE BY ADULTS.

TRAINWORLD TRAINLAND WE SUPPLY THE WORLD

The Hydrangea Tram Line

A well-integrated streetcar line in a confined space

by Christine and Lee Collett | Carterton, New Zealand | Photos by John Robinson

1. A pair of trams wait at the city center on the Hydrangea Tram Line in New Zealand. The line makes excellent use of limited space, utilizing vehicles that would prototypically negotiate sharp-radius curves. Star creeper blooms in the foreground.

2. In typical European fashion, an open market has been set up next to the line. Building fronts are from Pola.

The Hydrangea Tram Line is in the small, rural, service town of Carterton, in the south-eastern part of the North Island of New Zealand. The town is situated in the Wairarapa Valley, between the snow-capped Tararua mountain range (the tallest mountain being just over 5,000 feet) to the west, and the lower Maungaraki mountain range in the east.

The beginning

We had built our first railway, the Rosebrook Railway, on the eastern part of our driveway beneath a large, old, spreading silver birch tree that offered much-needed shade during the hot summers that Carterton experiences. This railway portrays a rural setting, with a farm, various country cottages, and a waterfall (with water channelled from it to run the water wheel of the nearby watermill), as well as a country railway station. Commuters stand waiting at the station to catch the train to the city.

Christine thought we really needed a city area to complement the country railway. As a child, she enjoyed riding on the trams [streetcars] in the capital city of Wellington during school holidays. These

3. The park at the north end of the line provides a pleasant place for residents to stroll or for children to play on the star creeper lawn.

4. A view of the city center. Trolley poles and wires are dummy—the streetcars run off of track power. Various groundcovers soften the edge of the retaining wall.

Plants on the Hydrangea Tram Line

Carterton, New Zealand
USDA Hardiness Zone 9

SMALL TREES & SHRUBS

Box
Buxus sp.
Dwarf barberry
Berberis stenophylla
Dwarf Alberta spruce
Picea glauca 'Conica'
Kowhai
Sophora sp.

GROUNDCOVER

Chocolate Chip ajuga, Carpet bugle
Ajuga reptans 'Valfredda'
Coral bells
Heuchera 'Chocolate Ruffles'
New Zealand star creeper
Pratia angulata
White star creeper, Isotoma
Pratia pedunculata 'Glacier White'
Mini star creeper
Pratia pedunculata 'Starry Night'
Baby tears
Soleirolia soleirolii
Creeping thyme (several varieties)
Thymus spp.

5. A tram ride provides a pleasant view of the countryside. Hydrangea trunks create a plausible grove at this level.

days, trams are usually only seen in transport museums in New Zealand, although they were running in Christchurch until the devastating earthquakes in February of 2011.

On the western side of our driveway, along the side of the house, was a relatively narrow garden in which several hydrangea plants were growing. Christine thought that we could build a city area there and run some trams. Lee, who has always had a great love for trains—both full size and model—since he was a small boy, willingly agreed.

The Rosebrook Railway is 16" off the ground, rising to 2'6", and is a slightly mountainous area. We wanted the tram line set even higher so that anyone viewing it could see the detail properly and be able to look into the shop windows without having to bend over.

We removed most of the plants from the area, except the hydrangeas, whose gnarly stems looked like old tree trunks.

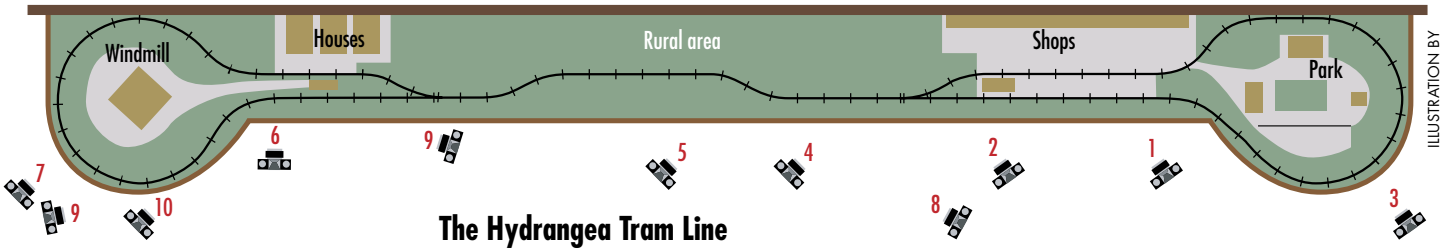


ILLUSTRATION BY MARC HOROVITZ

The Hydrangea Tram Line

6. A young family occupies one of the houses next to the line. Attention to detail brings the tram line to life.

Railway at a glance

Name: The Hydrangea Tram Line
Size: 33' long x 4'8" wide
Scale: 1:20:3
Gauge: No. 1 (45mm)
Era: 1950s
Theme: European town merging into country
Age: Four years
Power: Track
Length of mainline: 55'
Type of track: Aristo-Craft
Minimum radius: 2'
Structures: Pola kits
Control system: Bachmann speed controller

Lee placed some wooden edging, 12" high, around the periphery of the line. We then had to buy a truck-load of topsoil to build the tram line up to the correct height. We painted the edging rust brown to match the wooden edging of the Rosebrook Railway. Lee set to work planning the tram line, which measures 33' long by 4'8" wide.

Construction

In 2008, Lee drew up plans for the tram line that included a manual turntable at each end of the line. The soil was all in place. We drove angle iron (2" x 2" x 24" high) into the ground at various intervals, keeping the tops level with the wooden edging. Then, we pop-riveted metal channeling to the angles to form the track bed, which we painted gray before we laid the track. We sorted out what buildings we required and ordered them from Lokshop in Germany. Within six months, we had built the kits and put them in position in the new city.

The next stage involved setting out the poles for the overhead wires, which we made from 7⁄32" brass tubing. After we soldered these onto the track bed, we put 1⁄16" stainless-steel wire in place for the overhead wiring, and soldered all the joints. The overhead wiring is artificial, as the tram is run by track power, but it is there for the sake of authenticity.

It was now test time for the tram to see how the overhead wiring would work. We experienced a few hitches with the trolley pole coming off the wire while going around the curves. After we determined that some of the overhead wire had been placed in the wrong position, we made small adjustments and the tram was soon running smoothly.

As per Lee's plan, we made a manual turntable for each end of the line. This meant having to run up and down the line, following the tram, which became a nuisance after a while, especially when we had a club running day and there were a lot of people around. We inevitably had problems when everyone was watching!

7. The miller has a friendly chat with the postman as he receives his mail. Sacks of flour from the mill wait on the cart. Young box (boxwood) trees provide shade canopies for shopping residents.

8. Looking toward the south. The elevated line makes viewing and access easy. The railway is well integrated into its setting, transitioning from full-size to miniature plantings. An impressive windmill anchors the south end of the tram line.

About the authors

Lee and Christine Collett live in Carterton, New Zealand. Lee started his apprenticeship as a sheet-metal worker in 1963 and has been in the trade ever since.

Christine has worked as a legal secretary since 1966 and presently works for a local firm of lawyers. Besides railways, she has a love of cats and cat showing. She also enjoys handcrafts and art—when she has time!

Lee has been keen on model railways since his parents bought him a Märklin starter set for Christmas 1958. In 2005 they bought their first large-scale LGB starter set and from there the set has just grown.

Lee and Christine are members of the local Wairarapa Garden Railway Group and also belong to the Christchurch Garden Railway Society.

9. An overall view of the line, looking to the north. The large hydrangeas, for which the line was named, existed on the site before the tram line was built.

In early 2009 Ian and Ann Galbraith (club members) brought Michael and Elizabeth Hilliar from Auckland to have a look at our garden railway. While running the tram line and doing our thing with the turntables, Michael suggested that we make return loops. We liked the idea but feared it would cause problems with the polarity when using DC power. Ian said that he could fix the problem by supplying a reversing power unit, which he was happy to make for us.

We made extensions at each end of the tram line to allow enough room for the reverse loops. After these were in place, Ian came down and installed the reversing power unit, attached reed switches to the track, and glued magnets underneath the trams. The first time we ran a tram around the track everything worked perfectly. Thanks to Michael's suggestion and Ian's help with the power unit, we can now sit back and enjoy watching the trams running around continuously.

Landscaping

In the meantime, Christine pored over mail-order catalogs, looking for suitable groundcovers. As the tram line is in part shade, the groundcover commonly known as "baby's tears" grows well. In fact, it can become quite rampant, which means it has to be regularly thinned out. In the park at the northern end of the city we have it in the grassy area of the playground. This needs to be "mowed" regularly.

10. Three houses, also built from Pola kits, provide residences for the local population. Blooming star creeper blends with other groundcovers for the meadow look.

The centerpiece of the park is a miniature kowhai (*Sophora* sp.), a native tree of New Zealand. It has beautiful, long, golden flowers in spring. The branches are so delicate it does not overwhelm the area. We also planted two dwarf Alberta spruce in the park.

We planted a native plant, pratia, which has a tiny star-like flower and comes in pale blue or white, and later added a variety with slightly larger white flowers (*Pratia angulata*). It is just perfect for the railway. We tried various succulents, but they became too overwhelming and have been pulled out. Around the windmill at the southern end of the line are box plants, trimmed to look like trees.

The city

Buildings are from Pola, with figures by Preiser. There is a set of Pola relief buildings against the wall of our house for the city-center shops. At one end of the city center is a market place. In the center is a tram stop, with a bench for waiting passengers. From here the tram moves off, going around the perimeter of the park.

At the park's entrance is a monument to Mozart (Pola). A kiosk on the western side provides refreshments and newspapers for park-goers. Close by are tables under striped umbrellas, under which patrons can sit and enjoy their refreshments while watching the fountain in the center. In the fenced-off play area are swings, a see-saw, and a sandpit for children to play in. Mothers are there with their children. The area is securely fenced by the tram line.

The tram proceeds around the park and back through the city, past a wooded area of hydrangeas and box trees. It passes houses with people watching from their doorways and a woman carrying a basket of laundry. The tram stops here as well, where a man waits to board. After picking the passenger up, the tram then goes on its way around the windmill.

The large windmill is also a Pola product. Outside the mill stands the miller, collecting his mail from the postman. A young boy stands on the top platform, waving at the visitors to the tram line. A cart, piled high with bags of newly-ground flour from the mill, waits nearby. A recent customer is seen on his bicycle with a bag of flour on the rear carrier.

Future plans

We hope, in the future, to kitbash a Bachmann streetcar into a horse-drawn tram, like one we saw on a trip to the Museum of Transport and Technology in Lucerne, Switzerland, in 2009. Also, we imported a OcCre wooden tram kit from Germany, called "Berlin," which we still need to build. In the meantime, we'll continue to enjoy the Hydrangea Tram Line as it is today.

Thanks

We want to say "thank you" to Paul and Sue Kirby of The Train Stop in San Dimas, California, for supplying the track and poles, and to Roland, Elisabeth, and Andi of Lokshop in Germany for supplying the buildings and figures.

Also, a special thanks to John Robinson, who took the photos of the tram line for this article.

An introduction to WEATHERING TECHNIQUES for garden railways

Part 1: Prototypical weathering and using chalks

by Alan Olson | Arvada, Colorado | Photos by the author

A GARDEN RAILWAYS PROJECT BEGINNER

This flatcar was built up from a Phil's Narrow Gauge kit, with a diecast Allis-Chalmers dozer added for the load. Both pieces were weathered with many of the techniques described in this series.

Why weather a model? Why would anyone want to cover up that shiny, beautiful paint scheme on expensive new locomotive or piece of rolling stock? For me, it is simply a matter of taste. And, just for the record, some of my closest friends are people who don't add weathering to anything; I have even abstained from dusting up my streamlined diesels and I would shudder to think that someone would add weathering to any tinplate model.

Weathering has its place in our hobby. It can bring a model to life and help portray what railroading is actually like. When done correctly, it adds a level of realism and a sense that hard work has been performed. Weathering can turn a well-done model into something that looks like it has seen a life of hard service in the real world—and perhaps give it a bit of a soul.

During my years as a model builder, some techniques have become favorites and I continue to try many more. This article will not attempt cover all of these, as there are literally hundreds, and more are discovered on a regular basis. Who knows—you may come up with a new way to simulate weathering as you are working on one of your own projects.

How real weathering happens

Weathering can and does occur quickly. For example, when D&RGW locomotive Nº 346 was rebuilt and put back into service at the Colorado Railroad Museum, it was spotless. It had gleaming paint, shiny surfaces, clean windows, and white lettering. However, after operating for a two-day event, its appearance had changed dramatically. This almost-overnight change came about because of all of the exposed parts a steam locomotive has that require lubrication, ranging from heavy grease to oils of different types. Since Nº 346 burns coal, it is surrounded by dust, soot, and cinders. Add in exposure to harsh sunlight and rain or snow, and you can understand why a clean-looking engine might not stay that way long.

1. The door-locking mechanism on an all steel, plug-door boxcar shows the effects of moisture.

> **"WEATHERING can turn a well-done model into something that looks like it has seen A LIFE OF HARD SERVICE in the real world — and perhaps give it a bit of a SOUL."**

This is not to imply that all locomotives are or were operated with heavy weathering. Many mainline locomotives, such as the New York Central's streamlined Hudsons and the passenger consists they pulled, were cleaned on a regular basis because these trains were the pride of the fleet.

On prototype railroads, it is rare to see all locomotives and rolling stock showing the same amount of wear and tear. Many railroads have rebuilding programs, so it is not uncommon to see freshly painted locomotives or cars in a train with units of the same class in need of repair. The 3000-series of D&RGW narrow-gauge boxcars is a good example of this. Some railways are forced to defer maintenance because of financial concerns, as was the Rio Grande Southern, so some of their equipment saw heavy, long-term usage.

Things to think about

There are a few things to remember when you start that weathering project, and they are common to everything that is exposed to the elements. You will notice gravity also plays a big part. If a car is made from several different materials, your weathering project may require that each be treated with a different method. Liquids tend to flow downward but they can also wick up, as in the case of porous materials like wood, or they may get flung around by moving parts while the train is in motion.

Rust usually occurs when metal is exposed directly to moisture, which is most often caused by peeling paint or when the paint has worn through from use. The door-locking mechanism of an all steel, plug-door boxcar is a good example of this (photo 1). When paint peels off of a wood surface, an area of gray-colored wood with extremely pronounced grain is usually evident, as seen in the photo of D&RGW boxcar #3670 (photo 2).

2. Wood that has been exposed to the elements for long periods usually has a gray color and a pronounced grain due to peeling paint.

Sunlight and humidity can effect how quickly paint fades due to oxidation. Other things to consider are exposure to chemicals and location of use, such as proximity to a mine producing iron ore or an ocean with its corrosive salt atmosphere.

Another common effect of exposure to the elements is that individual details become clearer. Individual boards on wooden structures or pieces of rolling stock start to stand out. Edges of seams on an all-metal boxcar or the various components that make up a passenger-car truck become more apparent.

It is always best to try to find examples of the kind of weathering that you want to do. Photograph and study these examples, then choose some of the following techniques to achieve the desired results.

A word of caution: I have observed that a little weathering can go a long way toward giving a model a more realistic appearance—more is not always better. A common mistake made by modelers just starting out is to overdo it by applying heavy coats of washes, chalks, or stains. We have all seen examples of well-intentioned weathering projects gone bad. Extreme weathering on prototypes that are still in operation is fairly rare and can be a sign that the owner's finances are in dire straits.

I'd like to mention here that I use many different techniques to weather my models and I don't recommend that you use only one type. I suggest using chalks for first-time projects because they are forgiving. Experimentation with other methods will give you a good chance to find out what works best for you.

Getting started

I recommend that you pick up an inexpensive piece of plastic rolling stock at a sale or swap meet to practice on. This could be any kind of car but the easiest to attempt will be a boxcar, which will give you two sides with large flat areas to work on. Whatever the test subject is, it should be something expendable because you will likely make mistakes along the way.

Make sure that all surfaces are clean, free of oil and dust. Usually a good washing with warm, soapy water and a thorough drying will suffice for this step.

To demonstrate an entry-level project, I'll use a Delton outside-braced hopper car (photo 3). It is obviously not as simple a car to work on as a boxcar but it will show you how easy-to-do weathering can help bring out detail and give the impression of hard use to even a complicated car.

It has been my experience that if you plan to weather several cars of a particular type or class, it will be easier to do them all at once. Sometimes it is difficult to match the color, intensity, or even the technique on a new piece that needs to match one previously weathered.

The easiest way to start weathering is to give the project an overall coat of a dulling spray or clear wash to simulate slightly oxidized paint. When the dulling paint is applied, it reduces highlights that interfere with shadows. Shadows actually add definition to the different surfaces on a model and the result is that more detail becomes apparent.

For spraying, I use Testors Dullcote or Krylon's Clear Flat. Both are solvent based and should be tested on a scrap or in a hidden place on the model to make sure that they are compatible with the material that you are working on. Mask any areas you don't want sprayed, such as windows, to avoid overspray. This should be considered a non-reversible step and be done only with good ventilation. (I have discovered that an application of Dullcote is somewhat reversible—more on that later.) As with any spray paint, use light applications to avoid runs.

If you don't want to spray a solvent-based coating, Badger's #16-457 Dull

3. The shiny new paint on this Delton hopper car can be dulled by using spray or brush application of a dulling finish.

Coat is a water-based acrylic paint that can be brushed on or applied with an airbrush to leave a nice flat finish. I use a ½" wide, flat, chisel brush for most applications of this product.

Chalks

Using chalks or soft pastels is perhaps the easiest and quickest way to make a significant change in the appearance of your project. As long as you do not seal your chalk work with a flat coat, you can just wash it off with a soft brush and soapy water. This way, you can experiment with several different colors of chalk to get a feel for the results.

Chalks used to be available only in stick form and were found most often at art-supply stores. If you wanted to do an overall application, you would need to make your own chalk powder by scraping the stick with a knife edge, or by rubbing it on some 180-grit sandpaper or 320 grit, wet-and-dry paper (photo 4). This is not to imply that chalk sticks are not still useful for weathering. They have a definite purpose, which I'll discuss later.

When using sticks to make your own powder, start with black, white, and several earth tones, such as yellow ochre, red oxide, raw sienna, and burnt umber. Most grays that we most often use are not just a mixture of black and white; they also contain at least one brown earth tone and are referred to as "warm grays."

There are now many chalk weathering sets available, both in stick and powder form. These come in a wide variety of colors and, when using them in powder form, can be mixed just like paints.

4. Chalk powders can be made from chalk sticks rubbed on 320-grit wet-and-dry sandpaper, or bought ready to use from hobby shops.

5. After first coating the trucks with chalk powder, the author then applied the powder to the body of the hopper car.

Use a small, resealable container to store your custom-color mix. As you gain experience, you will also be able to mix the colors right on the piece that you are weathering. I always do my chalk work over a piece of newspaper. This will catch any chalk that does not adhere to the model and, when you are finished, you can pour the excess back into the container for reuse later.

When you decide that it is time to seal the chalk work with a flat spray, you may notice that the chalk seems to "disappear." This is because some flat sprays, such as Dullcote, actually absorb the dust. Don't panic! Just reapply the chalk and spray again. You can do this as many times as is necessary to get the required intensity.

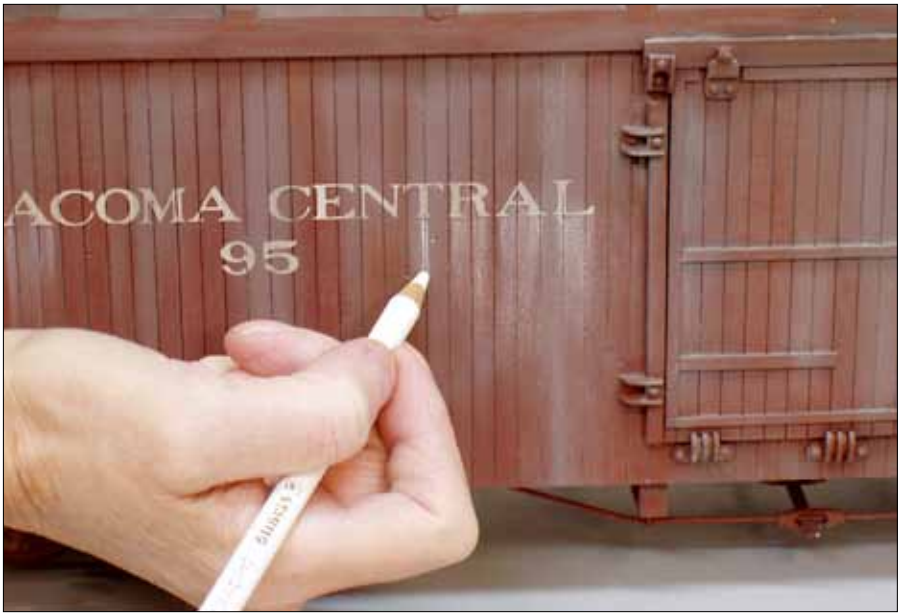
I use mostly flat brushes to apply chalk dust. These range from ⅛" wide for individual details, up to 1" wide for overall applications. Once you start using a brush for chalks, though, it will not be much good for anything else.

Weathering the hopper

On the prototype of our hopper car, the trucks and underbody likely became the first areas to show that the elements and usage were starting to affect their appearance. A good way to replicate this is to simply brush on a warm-gray chalk

6. A comparison between a stock hopper sprayed with Dullcote and one that has been weathered with chalk. The various details of the weathered car have become much more noticeable and it looks like the car has seen some hard service in the real world.

7. This car was built from a kit. When finished, it was given a coat of red-oxide primer and weathered entirely with the selection of chalk pencils shown beside it.



8. A white chalk pencil is used to make it appear that pigment from the fading lettering has washed down the car side.

powder over the sideframes, wheels, and couplers, and follow the procedure mentioned above. You can easily remove the chalk and coating from the wheel treads and flanges with a cotton swab and some rubbing alcohol.

Another option is to cut masking tape into ⅛"-wide strips and wrap them around the treads and flange surfaces. Also, remember that most of our locomotives and some rolling stock pick up current from the wheel backs, so be careful to avoid dusting up those areas.

Usually a simple overall coating of flat finish and a dusting of the trucks will make a subtle but noticeable difference in the appearance of any piece of rolling stock. To show further damage from exposure and hard use, you can give the entire car a dusting of chalk (photo 5). Work the chalk dust into all of the various surfaces, including interior details, and seal with Dullcote.

These steps can be taken as far as you want. For example, photo 6 shows a car with a just a single, clear dulling treatment behind a car with three successive chalk and flat-spray applications. There is quite a difference. The various details become clear, easier to see, and the car is much more interesting.

This brings us to chalk pencils, which are also useful, especially in tight spaces. When you buy colored pencils, make sure that you get the dry chalk version, not ones that contain wax or oil. I generally use Conté brand pastel pencils or Stabilo's CarbOthello brand. If you are not sure about what you have, test them. They should have the same feel, work onto the surface, and blend exactly like chalk powder or sticks.

Chalk pencils can be used for such things as coloring individual boards on building siding, tight-space trim work, or to represent stained areas. If you want to imply the discoloration of individual boards on a car side, get several close shades of the main color of the siding—some lighter and some darker—and apply these in a random fashion, using vertical strokes to start with. Color each board individually with one or two colors. The car in photo 7 was given a coat of red-oxide primer before weathering, and it was weathered using only chalk pencils.

Perhaps you have white lettering on a car side and would like to show that the paint has bled down a bit. You will want the bleed to occur only directly under the individual letters. A white chalk pencil works very well to create this look (photo 8). With light pressure, simply draw down from the bottom of the letter a short distance, then use your finger or a cotton swab to smooth the chalk into the car surface with downward strokes. Of course, you can use chalk pencils for different colors of lettering and black or red oxide can be used around hardware.

Next time I'll finish up discussing the use of chalk and talk about some non-paint-weathering techniques.

Online Extra

For subscribers: Download a bonus article on simple weathering techniques for rolling stock, originally published in the December 2006 issue. Click on "Construction & landscaping" under "How to."

Hartland Locomotive Works
P.O. Box 1743
La Porte IN 46352
Phone: (219) 362-8411
Email: info@h-l-w.com
Web: www.H-L-W.com
Hours: M-F 9:00 A.M. to 3:00 P.M. CST

MADE in the U.S.A.

Discontinued Items ~ Limited Stock

Get them while supplies last!

Coaches

Short Coaches

	Coach	Combo
Green	06100	*Gone!*
Maroon	06101	*Gone!*
Yellow	06102	06105
PRR Green	06106	*Gone!*
D&RG Maroon	06109	*Gone!*

Long Coaches

	Coach	Combo	RPO
Green	06200	06203	06206
Maroon	06201	06204	06207
Yellow	06202	06205	06208
PRR Green	06209	*Gone!*	06211
D&RG Maroon	06213	*Gone!*	06215
D&RG Yellow	06217	06218	06219

Interurbans

Red	09230
Red Combo Body	09229
Green	09233
Orange	09236
Orange w/ Pantograph	09235

Random Engines

4-4-0 D&RG Maroon	09556
Woody - Pickup D&RG	09215
Woody - Trailer Pkg. D&RG	09262
Railbus & Trailer Set	09252
RMC Green	09220

Birneys

Red	09350

Rolling Stock

	C&S	V&T
Flat Car	*Gone!*	01006
Gondola	02005	02006
Cattle Car	03005	*Gone!*
Box Car	04005	*Gone!*

DON'T FORGET!!
Hartland Locomotive Works
Parts & Service
Contact: Phil Jensen
(402) 571-2933
Tues & Thurs: 8 a.m to 1 p.m. cst
Repairs, Parts and Answers!

#1 GAUGE 1:24 SCALE

Son of Frankencar: The dark science of kitbashing

Junkbox parts came together to make an attractive and unique tank car.

I went through a period when I could not resist buying anything I was tempted by on eBay. As a consequence, I now have a workshop crammed full of unfinished (or unstarted) projects—many of which I will not live long enough to finish—and a wife who is seriously unhappy about all the accumulated boxes of stuff in my workshop.

Every once in a while I grab some of those boxes and build something from them, transforming random stuff of questionable value into cherished, one-off bits of railroad wonderfulness. . .or, so I'm fond of thinking.

The first time I did this was before 1:20.3 rolling stock was widely available. I wanted some 1:20.3 D&RGW 30' boxcars but didn't want to scratchbuild them from wood. I did, however, have three Bachmann 1:22.5 boxcar kits and a razor saw. Some measuring and calculating revealed that I could build two 30'-long boxcars from three kits by cutting the bodies into pieces and gluing them back together. Raising the sides with plastic strips got them to the correct height. They weren't quite wide enough but I had the first "correct scale" 30' boxcars on the block (photo 1).

PHOTOS BY THE AUTHOR

1. Two of these 1:20.3-scale, 30' boxcars were made from three Bachmann 1:22.5-scale boxcar kits.

I had some boxcar ends left over from the project and also a lurid green flatcar I knew I would never run. I couldn't throw that "Good Stuff" away—what to do with it? I decided to plank the top of the flatcar with coffee stir sticks and put a boxcar shed on one end. Adding a truck on chocks, an Ozark Miniatures crane, some tools, and—violá!—I had a wrecking car (photo 2).

Having had some success at this, when a 28' brass UTLX tank-car tank appeared eBay recently, I bid on it and won. I knew I could do something interesting with it but what would that be? A water tank on stilts was one possibility, and certainly

2. This wrecking car was created from leftover bits of the boxcar project, plus some more junkbox items.

3. Major components of the wood-frame tank car: An AMS 30' flatcar, the tank and trucks from a Three Foot Classics UTLX car, and a scale drawing from Bob Sloan's *A Century + Ten of D&RGW Narrow Gauge Freight Cars.*

prototypical, but it seemed a waste of a nice piece of brass. So, it went onto a shelf. Then, I was offered two AMS 30' flatcars without trucks, cheap. I had some spare trucks—and a tank (photo 3)!

So, yet another "Frankencar" plan was hatched. There was a prototype for this one, too. Back in the 1920s, Conoco took some tanks from old standard-gauge tank cars and put them on 30', wooden, narrow-gauge flat cars. These ran alongside the UTLX cars, which had also been converted from standard-gauge cars.

The tank fit nicely on the flat, with just enough room left for the end support beams. I hadn't really started out to replicate the construction process of the CONX cars, but with a nice tank and a matching flat, it was the logical alternative.

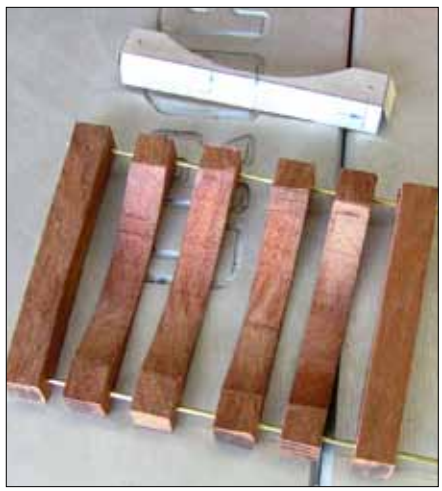
Here are some modeling techniques I'd like to share with you, which I found useful on this project.

Jigs and patterns. The first job was to fabricate the "cradle." This is made of four, concave 9 x 12" seats for the tank, and 12 x 12" beams at the ends, all held together by tie rods. Whenever there's more than two of some part, it's a good idea to make a jig or pattern to make the work faster and more uniform. I drew up the beams in my CAD program and printed a full-size copy on cardstock. I cut out the critical curve carefully, and left flaps on the sides and bottom. I then laid the pattern on the beams, folded the flaps down to register it, and traced the curve of the saddle onto the wood. I spent a few minutes at the scroll saw and soon had four identical saddles (photo 4). I also used the pattern to punch the starter holes for drilling the truss-rod holes, all exactly aligned.

Straightening brass wire. I was dismayed to find that my stock of .063" K&S rods was almost gone. After the panic, I realized that I also had a roll of 16-ga. brass wire and a technique I learned from a master modeler. I pulled about three feet of wire off the roll and clamped one end securely in my vise. Then I grabbed the other end with locking pliers and gave the lumpy strand a couple of hard yanks. The brass wire straightened up beautifully, and work-hardened, so I was able to cut the tie rods I needed and thread them with a 0-80 die.

Paint. I painted both the tank and the flatcar with rattle cans. I did something different on the tank, however. An acquaintance has some brass tankers that he leaves outside all the time. Exposure to sun and weather took the gloss off the paint, then lightened it to a charcoal gray—but only on top! To simulate this natural weathering, I painted the tank with flat-black primer, then sprayed gloss black on the bottom and dusted some gray and red oxide primer onto the top, giving the impression of it having been out in the elements. Some chalk work and "spilled oil" on the flatcar will complete the weathering.

Now I have another nice tank car for my fleet and a couple of unfinished projects off my shelf. I like the fact that the car matches the construction of the other wood-frame tankers I have, giving it that "family resemblance." It's not another identical car, though, that looks like it just came out of a box. These variations within the family resemblance really give a train a realistic character.



4. A cardstock pattern (top) made it easy to cut the saddles uniformly and properly align the truss-rod holes.

I still have more projects like these to do. Somewhere in those boxes is an unfinished railbus, made from the body of a Bachmann streetcar and the front end of a diecast Ertl Model T. Who knows what else lurks on those shelves?

Vance Bass has been in large-scale model railroading since the mid 1980s, continuing a life-long fascination with trains. His main interests now are live steam and scratchbuilding. He is retired from software and systems engineering and is currently a part-time musician and teacher.

We carry everything currently made by Aristo-Craft, Accucraft, B

St. Aubin TRAINS

Aristo RS-3

Best Seller

UP, SF, DGRW, RI, CP, Sou, PRR, B&O, NPI, NH **$264.99**
"A work-horse for your railroad!"

Aristo Eggliner

"Get some attention on your Garden Railroad!"

UP, ACL, Lady Bug, Easter, Warbonnet, Honey Bee, Butterfly, Wreath, Snowflake **$82.99**

"OLD GLORY" Eggliner

NOW IN-STOCK
LIMITED QUANTITIES
ORDER TODAY

Order at www.myeggliner.com

O Canada!

Coming Fall 2012
Limited Edition

Reserve at MyEggliner.com

Aristo

GN, B&M, C&N
NH, Seasho

"A real head turne

Aristo Pacific

PRR
B&O,
NYC, BN,
Sou, UP, D&RGW,
SP, ATSF, GN, Chessie, CN, C&NW, NH, Undec **$471.99**

Aristo 2-8-0 Consolidation

Undec, B&O, W Maryland, AFSF, UP, NH, CNW, GN, NYC, USATC, CNR **$579.99**

Aristo Mallet

PRR, ATSF, UP, D&RGW, C&O, Sou, N&W, B&O, SP, GN, CB&Q **$598.99**

SmartSignals

Signals with Sensors

Three Color, Seven Light, Color Position **$74.99**

Upper and Lower Quad Semaphore **$99.50**

CRV B

Mo

ava

1700 18.5V 260
1705 18.5V 520
1710 18.5V 780
CR-1 Smart Cha

USA Aluminum Passenger Cars Sets

4 Car Set (3+1) **$1024.99**
6 Car Set (4+2) **$1539.99**
11 Car Set **$2759.99**

SF, Cal Zeph, PRR Tuscan, NYC, B&O, UP, GN, Amtrak, NP, SP, ACL, CP, Sou, D&RG, LV, NH, EL, MP, PRR Congressional Coach, Diner, Sleeper, Baggage, Combine, RPO **$268.99**
Obs, Dome **$282.99**

USA 29' Beer Tank Car

Extruded aluminum body!
Lots of Road Names Online! **$92.99**

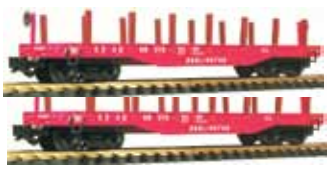
Aristo 2 Bay Coal Hopper

Available in 4 road numbers Undec, PRR, ATSF, UP, D&RGW, GN, B&M, C&NW, NYC, D&H **$61.99**

Aristo Drop

Soo, PRR, SR, B&
Conrail, EL **$57.99**

Aristo Flat Car 2 Pack



B&O, D&RGW, CP, UP, ATSF, SP, NYC **$81.99**

Aristo Track Cleaning Car

UP, ATSF, Sou, B&O, Aristo, PRR **$64.99**

USA Aluminum Modern Tank Car

Way too many road names to list. Come see all the available road names online today! **$122.99**

USA Trains Military Series

There are a platoon load of Army and Marine cars to choose from. Come see all the available road names online today! Starting at **$59.99**

Kadee C

We carry the full line of Kadee couplers including the new 900 series of couplers. Most common couplers are in-stock Starting at **$6.25**

Aristo Single Dome Tank

Union Oil, UP, GATX, ULTX, Gen Molasses, Stauffer Chem, Corn Ind. **$62.99**

Aristo Steel Box Car

Data Only, ATSF, PRR, B&O Sent, UP, Soo, Chessie **$69.99**

USA Woodchip Car

Undec, SF, UP, RG, SP, NS, PRR, Con, NH, CSX, B&M, Chessie, GN, BN, BR **$102.99**

USA Billboard Reefers

NEW DESIGNS NOW AVAILABLE
There are dozens of choices. The graphics are amazing. Come see all the road names online today! **$64.99**

XL G-Gau

Accucraft C&S Mogul #59 w/ Sound

MORE ACCUCRAFT AVAILABLE ONLINE

Accucraft Live Steam

MORE ACCUCRAFT AVAILABLE ONLINE

War Dept Live Steam Undec **$1,799.99**

Forney Live Steam Green or Black **$649.99**

Bachmann 20' Cars

Metal Wheels

Log Car, Flat Car, Gondola, Ore Car, Box Car, V Dump, and Side Dump Cars too! **3 for $119.99**

Aristo-Craft Buildings

Farm House $77.99
Church $115.99
Victorian Barn $133.99
Depot (Freight or Pass.) $64.99
Watch Tower $82.99

USA 60' Ste

NOW IN STO

You will not belie of road names v see all the availa online today! Sta

ST. AUBIN VALUES YOUR BUSINESS

Do you like our new ad format? Are there things we do that you like or don't like? We'd love to hear from you. Send an e-mail to suggestions@staubintrains.com and we will personally read your feedback. Your satisfaction is our utmost priority. Nobody works harder to earn and keep your business than St. Aubin.

Great Service Go!

NO DEPOSIT

Visit the all NEW Pre-Order the extensive list of new ite is your Pre-Order specialist in your hands faster!

StAubinTrains.com - StAubinTrains.com - StAubinTrains.com - StAubinTrains.com - StAubinTrains.com - StAubinTrains.com - StAubinTrains.com

achmann, LGB, USA Trains and dozens of other manufacturers!

We Ship Worldwide - No Re-Stocking Fee on Returns

Fast-Track Orders: 888-782-8246
Customer Service: 815-334-9100
Mon-Fri: 9-5 CST Sat: 9-4 CST Sun: Closed

StAubinTrains.com
24 hours a day - 7 days a week
FREE email Sales Alert!

RDC-3

W, NYC, LIRR,
ore **$264.99**
r for your railroad"

USA GP-38

Undec, LH, CSX, BNSF, RG, UP, SF, Con, Penn, SFWb, Milw, NS, Soo, AL, RI, C&O, B&O, Sou, D&H, CN, B&M, B&A, NYC, MEC, MP **$292.99**

USA SD40-2

Undec, D&RG, SF, UP, SP, CSX, Con, BNSF, Chessie, BR, BN, PRR, CP, NS, SFWb, CN **$326.99**

USA GP-30
Best Seller

D&RG, SF, UP, CP, CSX, Con, Chessie, PRR, BN, BR, CNW, ILCen, CP, GN, Milw, NYC, Read, Soo, BNSF **$292.99**

USA S-4

RG, SF, UP, BR, CNW, SP, NYC, PRR, Read, BN, B&O, WM, NP, CP, CN, NH, Christmas, WMFire, GN, WP, LV, B&M, Milw, MEC, CNJ **$258.99**

atteries
ore sizes and selection ailable online!
0 mAh $89.00
0 mAh $149.00
0 mAh $189.00
arger $109.00

USA Hudson

NYC with PHX Sound **$2139.99**
YouTube staubintrains.com/videos
Come watch our exclusive videos on this product and more online. Get a HighDef/Close-up view. Name another dealer that does that?

Bachmann 2-4-2
Hot Seller

NOW IN STOCK
Available in Southern, Undec Black, Undec w/ Red, Undec Green **$179.99**

Bachmann Climax

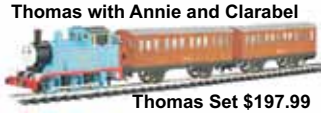
Yellow Pine, Clear Lake, Undec, Demo, Elk River, Bayside **$712.99 - $791.99** w/ Sound

Bachmann 2-6-0 Industrial

Undec, Yellow Pine Lumber, CO Mining, MW Quarry **$169.99**

End Gondola

O, Wisc Cen, NS,

Bachmann Thomas Set
Thomas with Annie and Clarabel

Thomas Set $197.99
Percy Set $197.99
James Only $189.99
Includes: 5' 4" x 4' 3" oval of track, DVD video, Speed Controller, plug in power supply.
KIDS LOVE THEM

Bachmann Thomas & Friends

Coal Wagon $39.99
Sodor Fuel $39.99
Tidmouth Milk $39.99
Cargo Car $39.99
Oil Tank $39.99
Annie $42.99
Clarabel $42.99
Troublesome Trucks $42.99 ea.
Emily's Coach $59.99
Emily's Brake Coach $59.99

Hartland Two-Truck Birney

NEW
Municipal Transit Authority
$ 349.99

LGB Passenger Set

With Sound
"LGB is back!" **$419.99**

ouplers
Kadee

Aristo Power

55401 10 Amp Controller	**$58.99**
55468 15 Amp Supply	**$138.99**
55467 15 Amp Controller	**$99.99**
55465 15 Amp Dual Voltage	**$118.99**
55610 Li-Ion Battery	**$83.99**
55620R Li-Ion Charger	**$39.99**

Aristo Track

"They make it. We carry it!"

Brass		Stainless Steel	
12" Straight	**$79.99**	12" Straight	**$106.99**
24"Straight	**$158.99**	24" Straight	**$213.99**
36" Straight	**$237.99**	36" Straight	**$319.99**
60" Straight	**$417.99**	60" Straight	**$536.99**
8' Rail Tube	**$272.99**	8' Rail Tube	**$358.99**
4' Curve	**$79.99**	4' Curve	**$106.99**
8' Curve	**$177.99**	8' Curve	**$209.99**
10' Curve	**$219.99**	10' Curve	**$261.99**
20' Curve	**$442.99**	20' Curve	**$533.99**
10' Switch	**$55.99**	10' Switch	**$64.99**
20' Switch	**$129.99**	20' Switch	**$157.99**

TeamLargeScale.com

Now ONLY $19.99 per year Save that with your 1st sale coupon

ge Oil Kit
Medium, Heavy, Gear, Paste
$24.99
"Keep them running perfect for just pennies!"

USA Trains TP-10
$164.99
Best Seller

- 10 Amp Power
- Hand Remote
- Momentum
- Braking

SplitJaw RailClamps

Brass	
10 . . .	**$17.99**
50 . . .	**$84.99**
100 .	**$159.99**

More selection and specialized clamps available now online!

Aristo RailClamps

"Simple to Install!"

Brass	
10	**$11.99**
100	**$87.99**
Silver	
10	**$14.99**
100	**$105.99**

Popular Parts In-Stock!

ART Wheels - **$19.99**
BAC Wheels - **$15.99**
XL Oil Kit - **$24.99**
BAC Oils - **$9.99**
LGB Maint Kit - **$39.99**
CRE Smoke Fluid - **$5.99**
ART Track Screws **$5.99**
ART Screw Assortment **$7.99**
ART Slowmo Switch Machine **$19.99**
LGB Switch Machine **$31.99**

eel Box Car

eve the number
we have. Come
able road names
rting at **$109.99**

Bridgewerks
Mag Dual 8 Amp **$318.99**
Mag 10 SR **$414.99**
Mag 15 SR **$454.99**
Mag 220 RM **$799.99**
Engine Jack **$69.99**

SEE OUR FULL SELECTION ONLINE TODAY!

Phoenix Sound
PB11	**$249.99**
P8	**$189.99**
Prog Kit	**$84.99**

PHOENIX

"You'll never sound so good!"

Aristo Revolution

Starter Kit
CRE 57000 **$239.99**
Receivers
CRE 57002 **$87.99**
CRE 57003 **$439.99**
Super Base Station
CRE 57005 **$149.99**
Switch Receiver
CRE 57074 **$88.99**
Non-PnP Adapter
CRE 57077 **$19.99**

Polk's Pro-Tech

Best Seller
Great for Trolleys and Single Engines
2 Amp Power Supply + Controller **$29.99**

PRE-ORDERS
section on StAubinTrains.com to see
ms available for Pre-Order. St. Aubin
. No one gets new and re-released items
Pre-Orders Go!

HUGE SELECTION ONLINE
We have several thousand items listed online for you to browse through. They are in stock and ready to ship to you. Save time at our site as we only list items that are available from us or from the manufacturer. It is fast, easy to use and you can order 24 hours a day.
R20043 Go!

StAubinTrains.com - StAubinTrains.com - StAubinTrains.com -

Trains, graffiti, & fine art

Weathering models for an art exhibition

by Tim Conlon | Washington DC | Photos by the author

The Museum of Contemporary Art in Los Angeles (MOCA) opened its Art in the Streets show on April 17, 2011. It is the first major American museum exhibition on the history of graffiti and street art, tracing its development from the 1970s to the global movement it has become today. The show was organized by MOCA Director Jeffrey Deitch, with associate curators Roger Gastman and Aaron Rose.

Gastman, who is an old graffiti friend of mine and originally from Washington DC, is the author of *Freight Train Graffiti*, *The History of American Graffiti*, and was a consulting producer on the Banksy film, *Exit Through The Gift Shop*.

Around September 2010, I received a call from Roger, who had an interesting proposition. He asked me to curate the freight-train graffiti display as part of the timeline for the show, due in part to my own years of painting freight trains in the early '90s, as well as my extensive knowledge and network of freight-train graffiti writers.

Roger had seen the graffiti pieces on model boxcars that I had painted for smaller gallery shows and he thought it would be great to select a group of graffiti artists to paint a few large-scale cars for the museum. I was excited about the opportunity, but I knew I'd have a lot of work ahead of me.

The Art in the Streets show at the Museum of Contemporary Art in Los Angeles was the first major American museum exhibition on the history of graffiti and street art. Graffitti artists collaborated with model railroaders to produce the work for this exhibit.

> **Roger Gastman:** Art in the Streets is made up of the best of the best, those who have transcended the streets and brought the energy of their works indoors—artists who are in museums and in serious collections and show with "real" galleries.
>
> Since graffiti is no longer a subculture, but is its own full-blown culture, we wanted to represent as many of graffiti's subcultures as we could. Freight trains are one of the most important subcultures of graffiti, and it was necessary that the history of monikers as well as the writers who use aerosol received their due.

I immediately tallied more than 50 graffiti writers I thought should be included in the show, but I was restricted to just 12 model freight cars. To begin narrowing down the list of potential artists, it was decided the writers should be pioneers from the early 90s, when graffiti was just starting to take off on rolling stock. The other decision was to try to cover different regions of the United States in order to have a decent representation of freight trains being painted during that era. A few of the cities covered included Boston, New York, Philadelphia, Baltimore, Atlanta, Jacksonville, Miami, Minneapolis, Milwaukee, Los Angeles, San Francisco, Oakland, Portland, and Seattle. After much polling and debate, a total of 24 artists were chosen, or two per car.

The cars that were selected were Aristo-Craft #ART50000 series, 1:29-scale, 53' Evans boxcars. The primary reasons for choosing these cars were because of their length, flat sides, and several base paint schemes that would work well as a canvas for the graffiti artists to paint. After tracking down the cars from several shops across the US, the next step was to ship them off to the weatherers from The Weathering Shop.

Jeremy St. Peter: The Weathering Shop is a collection of nine guys who are into weathering models. We primarily work on HO-scale freight cars, locomotives, vehicles, and dioramas, though we do have a fellow who works in 0-scale, and our members share a wide variety of eras in their modeling. We model every era except steam, with the predominance of our interests being the modern era. Nothing gets us going more than some sweet rust pits, streaks, and killer tags.

We were approached for this project by Tim because he had seen a model that one of our members, Gary Christensen, had posted on a fairly well-known weathering forum. The project was a model of a freight car that Tim and his crew had tagged back in the day. Anyway, Tim thought it would be cool to have some of the large-scale cars that were going to be tagged for the Art in the Streets show to be weathered as well.

Trust me, this was no easy task! Most of us, as I mentioned, work primarily in HO scale. Working in large scale is like going to McDonalds and getting a supersized double quarter-pounder meal, then stopping down the street on the way home and buying a couple large pizzas for dessert, when you're used to ordering a plain hamburger and a cup of water.

Everything is multiplied in size. This is definitely something that was a challenge in our weathering of these cars; 20/0 lining brushes gave way to ½" brushes for rust streaks; ½" brushes gave way to 2" brushes for fades and grime washes; air brushes gave way to rattle cans for painting the cars. Small workbenches were traded in for dinner tables and washing machines as places with enough space to weather these beasts on. Most of the time when we weather our projects, we seal our work with a flat finish called Dullcote. This stuff comes in a handy-dandy three-ounce spray can. A can often lasts for a couple months of work for HO-scale. In large-scale, we were using one can per boxcar!

As far as what we use to weather these, or any cars, the list is varied. I work in artist's oil paint but most of the fellows use products such as water-soluble oil paint, gouache (which is a watercolor-type of paint that is impregnated with an adhesive), acrylic paint, pastel chalk, and weathering powders.

Weathering: Jeremy St. Peter **Graffiti:** Heat, Awe

Weathering: Sandy McDonald **Graffiti:** Con, Arek

Sandy McDonald: The thing that struck me the most is the size of large-scale rolling stock and the huge amount of paint and Testors Dullcote I had to use. The roof gave me some trouble because of the massive size of it.

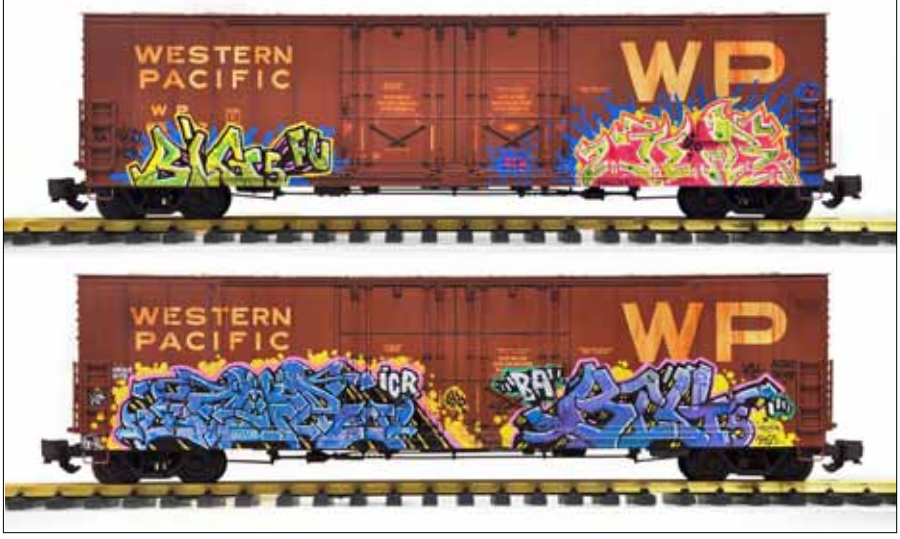
I started by using white artist oil to oxidize the galvanized roof. When the thin coat of oil was dry, I sealed that layer in with Dullcote. I then started the rusting process by stippling on raw sienna in the pattern I wanted. After that, I used Indian red just inside the outer line of raw sienna. Then, inside the outer line of red, I used raw umber and then stippled in a dark-brown powder.

The next day I went out to start the sides and, to my dismay, I found that the oil had dried too fast and cracked. So I had to strip it all off and start over. It was a serious challenge to weather such a large rail car when HO scale is all I have ever worked on. In the end, I was happy with the results, but I would probably not rush to do another large-scale project.

Perry Lambert: When I first received the car, I was overwhelmed at the actual size of it, as I have only modeled in HO scale. However, I felt this would give me an opportunity to try some different approaches to weathering.

As with any project, I started with the trucks and underframe. I gave the trucks a treatment of custom-mixed browns,

Weathering: Perry Lambert. **Graffitti:** Jero, Big5



airbrushed at about 60 psi to create a little texture to simulate the grime kicked up by the wheels. Once I was happy with the color, I used oil washes to blend everything together.

In looking through some prototype photos, I could see the brown sides of the car were still brown but had different hues of brown. I changed the color gradually by dry-brushing various brown-colored oil paints onto the sides of the car. This also gave the lettering a brown, dirty look. Once I was satisfied with the color of the sides, I used a black oil pin wash to highlight the seams and details. For the roof, I used a salt mask to cover the existing roof, then I sprayed brown over the salt. Once the salt was dry, I cleaned it off and gave the roof a rust-colored wash to simulate rust running down to the sides of the car. After everything was dry, I gave the car a Dullcote finish to seal the weathering.

MrKluke: For my first non-HO-scale project, I received a large-scale Evans boxcar with the classic Conrail paint and "can opener" logo. The only CR Evans boxcars I could find online were second-hand patch jobs and none of them had brown paint. For that reason, I just borrowed some of the weathering ideas from another Conrail hi-cube boxcar that I found on a railroad website.

Weathering in large scale was a *huge* difference (literally!) from what I was used to. Because I immediately removed the trucks for further detailing, I had to build a custom platform to hold the car while I weathered the body. First, I used several paint washes to change the brown color to a more reddish one. The main rust patches are simply concentrated weathering powder, rubbed on with my fingers. I cleaned the powder off the graphics because that's how it was done on the prototype I was using as an inspiration. I applied subtle streaking with oil paints. I also added door scrapes and patched over "CR" with "NYC," indicating CSX ownership. Between weathering layers, I added liberal amounts of Testors Dullcote from the rattle can.

This large-scale project used much more powder, paint, and Dullcote than I'm used to using in a single project. Overall, it was fun. However, I was surprised that a bigger scale didn't offer more fine detail. The details were chunkier than I expected.

Weathering: MrKluke **Graffitti:** Crispo, Cense

Jeremy St. Peter: As you can see, each of us felt the challenge, when working on cars so large, of doing what most of us have been doing for years. If any of you large-scalers out there do this kind of weathering on a daily basis, my hat is off to you!

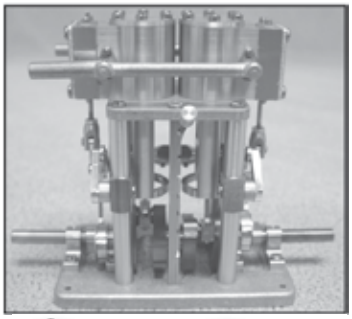
I would like to thank Tim for inviting us to share in this project. He and the fellows who tagged these cars are artists I hold in highest esteem, and to be invited to share the stage really makes all of us weatherers feel good about what we do.

Tim Conlon: Art in the Streets closed on August 8, 2011. It was originally scheduled to head to the Brooklyn Museum in 2012 following its run in LA, but the museum had to back out due to financial issues. Jeffrey Deitch, the director of MOCA, has said there is interest in the exhibition from art institutions around the US and abroad, so expect to see the show pop up again if you missed it the first time around.

Online Extra

For registered users: Read an extended version of this article, which includes many extra photos. Go to www.GardenRailways.com and click on "Hobby news" under "News and products."

TVR1A – TWO CYLINDER VERTICAL REVERSING STEAM ENGINE KIT



- Bore: 1/2"
- Stroke 5/8"
- 5-35 PSI steam or air
- 19 page instruction manual with photos!
- All machining complete
- Assembly required
- Made in USA
- Hackworth reversing gear
- 3800 Max RPM
- **Materials:** Brass, aluminum and steel
- All hardware included in kit (stainless steel)

$245 includes shipping via Priority Mail anywhere in USA!

OPTIONS AVAILABLE:
- $25 (TVR1A-HEX) Brass hexhead dress-up bolt kit
- $25 (BFLY) 1 3/4" Brass 5 spoke flywheel
- $20 (MFLY) 1 3/8" Brass solid marine flywheel

Graham Industries
PO Box 15230
Rio Rancho, NM 87174-0230
FAX: (505) 715-4527

We accept all major credit cards. **Secure** online orders through our web site
www.grahamind.com

MINIATURE & DWARF
PLANTS RATED FOR SOUTHERN CALIFORNIA

Trees *Conifers* *Perennials*
Shrubs *Groundcovers* *Accessories*

M&M NURSERY
380 N. Tustin | Orange, CA 92867
(714) 538-8042
Walk-in sales only

WEST COAST REGIONAL MEET
July 6-8, 2012

The San Diego Garden Railway Society will host the West Coast Regional Meet. 35+ Southern California Garden Railroads from the SDGRS membership will be open for your viewing pleasure. There will be self guided tours to the many new and exiting railroads in the area. Extend your stay and visit our City and Beaches, Sea World, Safari Park or the San Diego Zoo.

Registration - Spring of 2012 - sdgrs.com
Current information available at 619-479-9164 and bonitagardentrains@cox.net

WE WELL SEE YOU THERE!!!

R&G RAILROAD CO

Suspended and wall-mount railroad systems designed for any G-Scale Railroad

FREE SHIPPING anywhere in the Continental United States
(Limited Time Offer)

Call or Write for:
FREE Design Kit and Price List

15314 Black Shadow Drive
Moreno Valley, California, 92551
Phone 951-242-4258 • Fax 951-247-8395
raygingerbaker@msn.com
www.randgrailroad.com

Proudly made in the U.S.A. by the founders of Bridgewerks

AUTHENTIC SCALE BILLBOARDS

Featuring:
- Steel and aluminum construction
- Weatherproof for outdoor use
- Replaceable sign plates
- 6 Unique billboard structures
- Huge variety of artwork, or create your own design

Coming Soon: Lighting package

Visit our website for ordering information!

MOUNTAIN BILLBOARDS .com

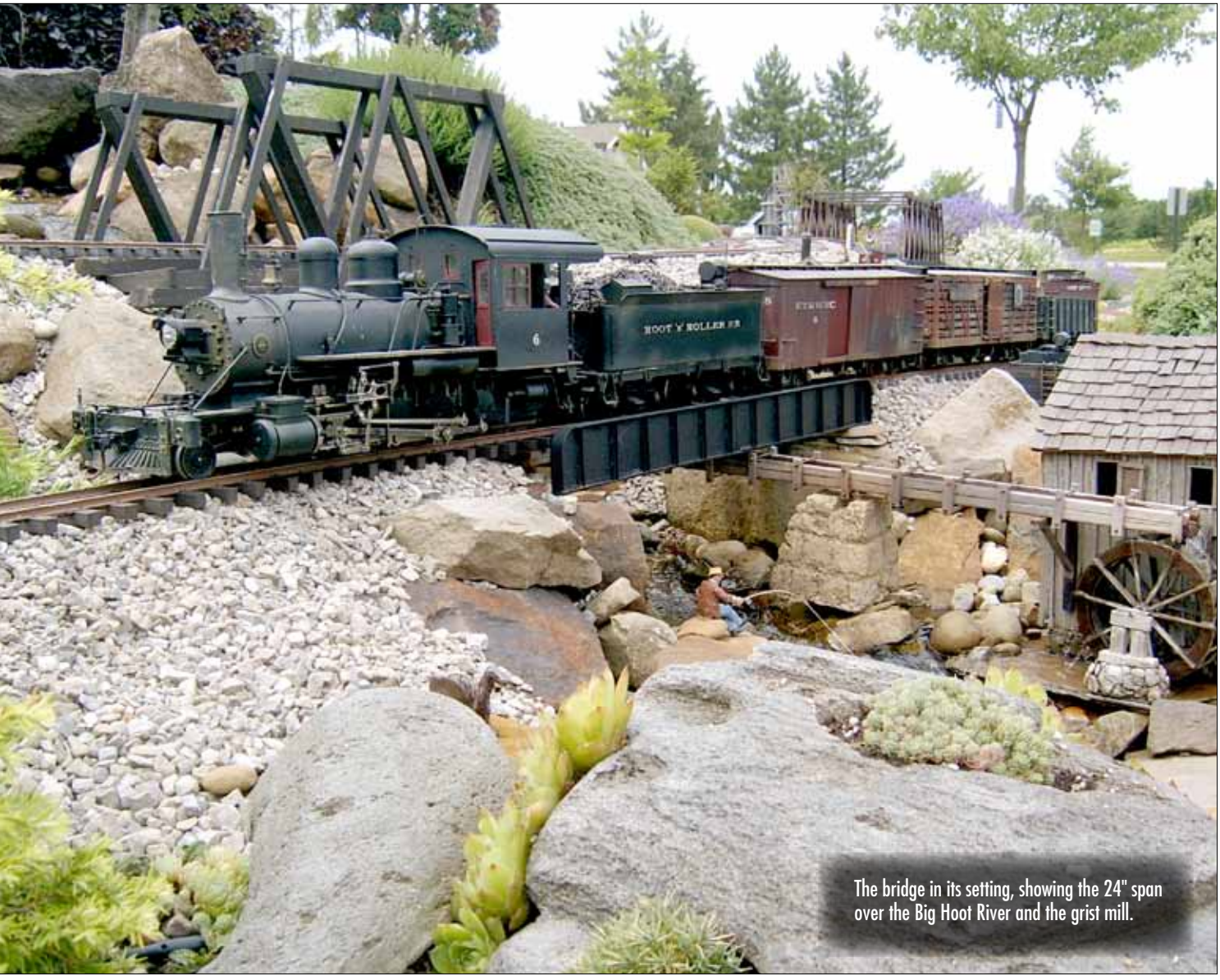
www.mountainbillboards.com • (800) 908-9997

Building a metal through-girder bridge

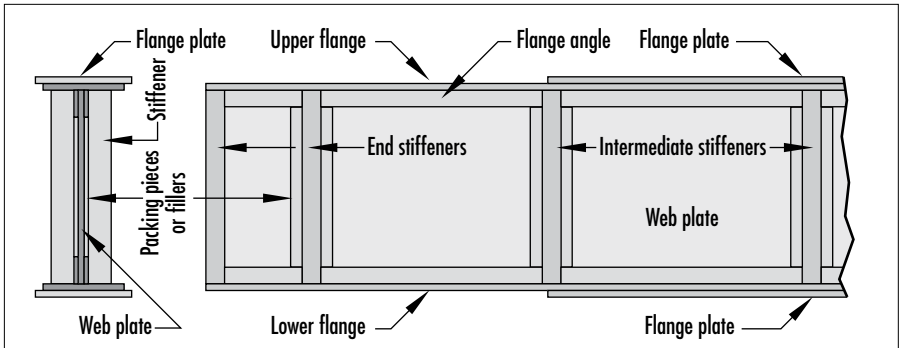
A GARDEN RAILWAYS PROJECT INTERMEDIATE

An exercise in soldered-brass construction

by Don Parker | Oberlin, Ohio | Photos by the author



The bridge in its setting, showing the 24" span over the Big Hoot River and the grist mill.



ILLUSTRATIONS BY MARC HOROVITZ

Figure 1—From a 1914 publication

1. The Dremel rotary cut-off wheel and small vise were effective for cutting the brass strip.

Marc Horovitz's editorial on "retro-modeling" in the April 2011 issue of this magazine provided the incentive I needed to build a metal through-girder bridge for my Hoot 'n' Holler Railroad. His point was that added satisfaction can be derived from using materials similar to the real thing and using techniques specific to building with that material. I had reused all the wooden bridges from my former garden railway and had also built a stone-and-concrete bridge, but I needed one more span over the Big Hoot River. (One can never have too many bridges, in my opinion.) The new bridge I envisioned would have a low profile so as not to hide too much detail of the plunging falls of the river, and be made of metal—basically because I didn't have any metal bridges and I like variety.

The type of bridge I wanted to model was a through-girder bridge (technically known as a half-through girder). This is a common type of bridge used on railroads where the span is not too great. The load-bearing strength of the girder comes from two heavy, reinforced web plates between which the train passes. The flange of the girder is made of flat plates and angles to provide I-beam strength. Vertical stiffeners prevent the central web plate from buckling under load (fig. 1). The track is supported on cross beams that tie the girders together.

The metal I chose to work with was brass because of its ease of cutting and soldering. The bridge needed to span 24", which worked out well for commercially available sizes of brass strip. The crucial specification for girders is that the depth of the central web must be no less than 1/15 (or preferably 1/12) its length. So a 2"-wide brass strip would be a perfect size for a 24"-long girder. I ordered four, 2" x 12" x .032"-thick strips of brass, along with the rest of the reinforcing pieces needed (manufactured by K&S Engineering Company and purchased online—see parts list).

Materials list

Qty.	Item
4	12" x 2" x .032" brass strip
11	12" x ½" x .025" brass strip
4	12" x ¼" x .025" brass strip
9	12" x ¼" x .016" brass strip
24	12" x 5/32" brass angle
2	23" x .59" x .69" dimensional cedar
4	2-56 x ¾" machine screws

Online source of K&S brass:
www.needtrains.com
(Cost: about $63 + shipping))

Tools list

Small butane torch (Bernz-o-matic butane micro torch shown)

Solder

Flux and small flux brush

Emery cloth

Dremel tool with abrasive cut-off wheel

Vise-grip pliers and other metal tools for gripping and holding in place

Primer and flat-black spray paint

Forming the girder components

Figure 1 (from an illustration in a 1914 publication) shows a girder with a squared-off end. The usual railroad through-girder bridge has the top corners rounded on the ends. I used a bottle cap (about 1" in diameter) to mark an arc on one end of each 2" x 12" brass-strip web plate. I then ground the strips on a coarse belt sander to produce the rounded ends, although it could also be done by hand with a file.

Four ½" x 12" x .025"-thick strips

2. Materials and tools used to make the bridge. The electric and small butane soldering irons were not used. The larger butane micro torch was ideal for this project. The curved upper flange plates are in position.

3. Emery cloth was cut into strips and wrapped around a plastic picnic knife for buffing small areas.

4. The lower flange plate is solder-tacked to the web plate; the angle piece in the foreground will be soldered over this joint.

5. One flange plate has been tacked to the cross-beam plate (foreground) and will be heated to make the solder flow along the joint (as in the completed beam seen in the background).

(upper flange plates) were bent to match the arc of each rounded web plate. Each flange plate was marked with a number to correspond to its matching web-plate end (as they varied a bit in their curves). I then laid two web plates on a flat surface, end to end, and fitted the corresponding curved flange plates over them. Using an abrasive cut-off wheel (photo 1), I cut a piece of the same ½" strip to fit in the resulting gap between the flange plates at the center. To be most accurate, there should be another piece of ½" strip, about 1" longer, laid on top of the gap-closing piece to represent the reinforcing plate at the center of each girder span. The lower flange plates consist of two, ½" x 12" brass strips, again with a 5" reinforcing strip centered over their joining ends.

The upper two 5⁄32" x 12" flange-angle pieces were fitted in place and the overlapping part of one cut off (because of the shortened distance produced by the rounded ends).

The lower-flange-angle pieces were then laid on the web plate. I measured the distance between the upper and lower flange angles and cut 52 pieces of .016" x ¼" brass strip this length to serve as fillers (packing pieces—see fig. 1). Then I measured the distance between the protruding sides of the upper and lower angle pieces and cut 48 sections of 5⁄32" brass angle strip to fit.

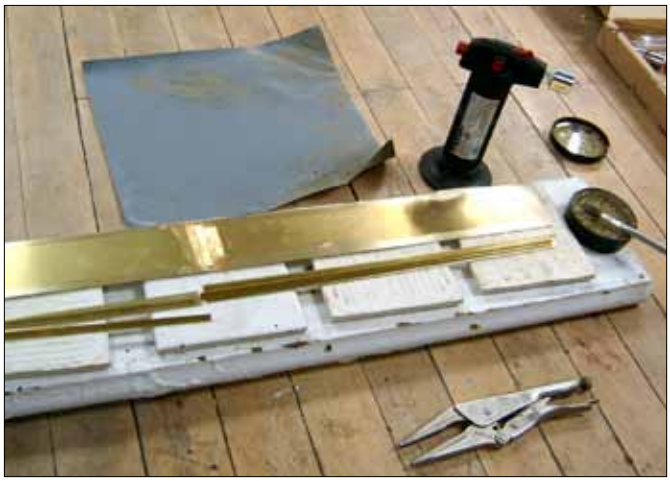
Lastly, I cut four pieces of ½" x .025" brass strip, 6" long, and eight pieces of ¼" x .025" strip, 6" long, to form the cross beams. The bridge components and the necessary soldering tools can be seen in photo 2.

Soldering brass

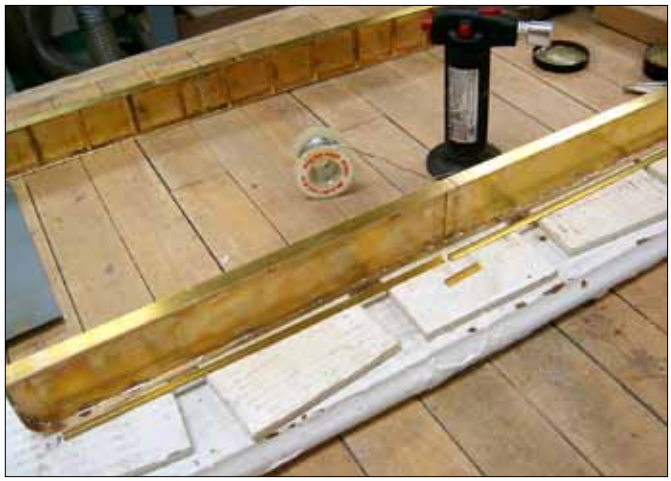
I purchased a small butane torch (see tools list) to produce the heat I needed to solder the thicker pieces of brass. This proved to be the basic soldering tool I used for the whole project. Other tools were common ones I already had. I laid a row of ceramic tiles on my work bench on which to do the soldering.

The most important steps in prepping the pieces to be soldered are careful cleaning or freshening the brass surface by rubbing it with fine emery cloth (photo 3) and accurate placement of flux on both parts to be soldered. Too much flux can burn and produce a hard, resin-like residue that is hard to remove.

When soldering a long piece, I found it helpful to first tack the piece in the position I wanted (photo 4) before



6. The 24" girder is formed from (two) 12" pieces of 2" brass strip, soldered end-to-end, with a ¼" strip acting as a reinforcing splint.



7. An upper (curved) flange plate is solder-tacked to the web plate, with the angle pieces lying ready to be sweat-soldered over the joint (as in the finished girder in the background).

8. Filler strips have been soldered in place. Angle stiffeners are being prepared on the left and have been tacked onto the filler strips on the right, ready to be sweat-soldered into final position.

9. The finished brass work, with the cross beams soldered in place.

soldering the whole joint. Small metal clamps, surgical forceps, or Vise-Grip or other locking pliers are useful for holding parts in place. After tacking the piece at multiple points, heat is applied to the joint and the solder will flow between the two parts (photo 5). Extra solder can be added to ensure complete coverage of the joint. When soldering one flat piece onto another, flux is applied to both, a few bits of solder are placed on one surface, and the pieces are held in place while heat is applied to make the solder flow evenly between the two parts (sweat soldering).

One of the vexing problems of soldering multiple pieces in close proximity is the loosening of one part while soldering another nearby. I found this not to be a problem when soldering on the same side. The thickness of the main web plate and the heat of my torch seemed balanced enough to prevent the heat spreading too far.

However, soldering on one side of a piece that has already been completed on the reverse side was another story. The angle stiffener on the back side would come unsoldered while I was trying to attach the comparable stiffener on the front side. I solved this dilemma by laying the girder on a metal strip (a heavy metal "L" square). The metal strip supported the lower angle piece and served as a heat sink to prevent it from coming unsoldered.

Assembling the girders

The first thing I did was to solder filler pieces, on both sides, across the joint between the end-to-end web plates of both girders (photo 6). This held the full girder span aligned while I added the rest of the reinforcing pieces. I laid two, ½" brass strips end-to-end on my work space and centered a web plate on these, holding the plate in place with vise-grip pliers (photo 4). I tacked the pieces with small amounts of solder every inch or two in order to secure them, laid an angle strip in place, then heated the three pieces to get the solder to flow evenly into the compound joint. I found it necessary to hold the angle piece against the web and flange plates with a screwdriver while soldering, to prevent it from warping out of place from the high heat. When completed, this formed the lower flange.

I then turned the girder top-side down, onto the curved upper-flange plates, and tacked them in place (photo 7). The ½" strip of brass that was cut to fit the gap between the curved flange plates was then

10. The bridge, primed and painted flat black, with the wooden stringers fastened in place with machine screws.

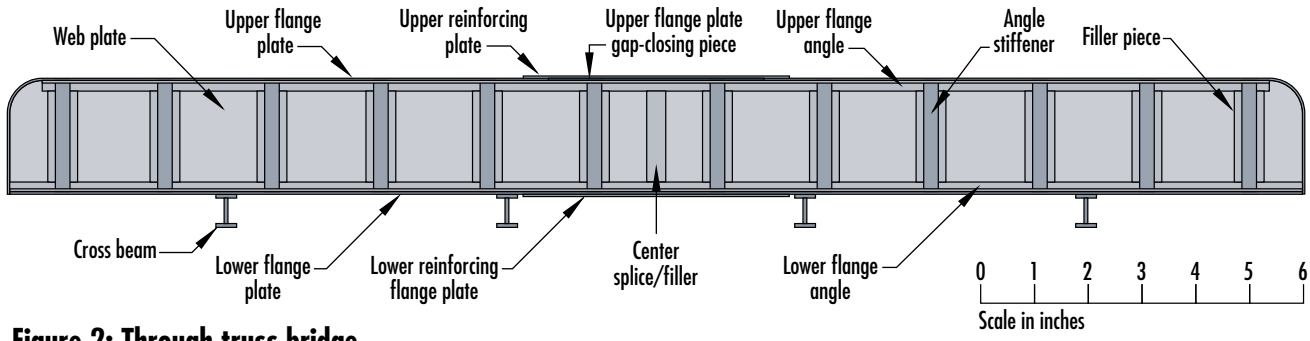


Figure 2: Through truss bridge

tacked in place and the joints between them evenly soldered.

A 12" angle piece was fitted and soldered into place and the other angle piece, which had been cut to fit, was soldered in the manner described above. This would have been a good time to add the extra, reinforcing, center flange plates, top and bottom. I failed to do this due to inadequate planning and not having step-by-step reminder instructions made ahead of time.

I marked the position of the stiffeners, making the first mark 1" from one end and then every 2" until the last mark, 1" from the other end. I tacked and then sweat-soldered the 12 filler pieces onto the web plate, then put a couple of small blobs of solder on top of each filler. While holding an angle piece in place with a screwdriver, I soldered it onto the filler, then repeated that for all stiffeners on that side of the girder (photo 8). The same steps were repeated for the other side and for the second girder. As I mentioned above, I found it necessary to support the angle stiffeners on the underside of each girder when I was soldering the comparable stiffener on top.

Cross beams were made in a similar fashion, tacking a 6" x ¼" x .025" flange strip to a 6" x ½" x.025" web strip, heating the work to get the solder to flow the entire length of the joint, then turning the beam over and doing the same for the other flange (photo 5). I chose to make four cross beams, although six might have been more prototypical.

Figure 2 shows the cross beams placed under the main girders for clarity of construction. This is an option, although I prefer placing them between the girders for a neater look. I marked their positions, approximately 4¼" from each end and about 5" apart at the middle. I set them between the two girders, resting on the lower flange, and held them in position with metal clamps while I soldered them in place. The finished brasswork can be seen in photo 9.

Finishing touches

After finishing the soldering, I cleaned up the work by grinding off any excess solder with a Dremel tool. I gave the entire bridge a dish-soap bath to remove any grime or oily material, rinsed and dried it well, then spray-painted it with a good grade of primer.

The final finish was flat-black paint, applied in two or three coats with a spray can. I could have used a brass blackening agent such as Blacken-It, but I balked at the recommended muriatic-acid (hydrochloric acid) bath needed to get good results.

After the paint was dry, to finish the project, I added two 23" x (scale) 12" x 14" (.59" x .69") wooden stringers (naturally weathered pieces of cedar I had on hand) to support the ties (photo 10). These stringers were attached with machine screws turned into holes sized for threading drilled in the cross beams' upper flanges.

I feel this project has "broadened the scope of (my) modeling abilities," to quote Marc. It fits into the railroad perfectly, as I had envisioned (lead photo), and is my current talking point when showing visitors around.

KERN VALLEY RAILWAY

Continuing its practice of bringing innovative products to market, KVR is proud to announce its production of (2) Harriman 60ft Cars, a Coach and a Baggage Car. These cars will be available in both 1:29 and 1:32 scales with a cast resin body, precision-milled acrylic sides, ball bearing trucks and Kadee Couplers. The cars will be available in Ready-to-Run or kit form and includes custom made decals. Coach interior and lighting available upon request. Christmas Delivery!!

Coach
(RTR) $675
(Kit) $475

Order yours today!!

Baggage
(RTR) $575
(Kit) $375

KERN VALLEY RAILWAY

www.kernvalleyrailway.com
business#: (661)-588-5613 cell#: (661)-706-3687

Klaus Stork Presents
TrainCraft by Klaus©

Your "Famous Klaus" provides state-of-the-art restorations and repairs of LGB trains, has hard-to-find LGB parts and state-of-the-art decoders & sounds. He offers layout design & consulting and reproductions from sophisticated 3D machinery. Klaus is certified for tax valuations (Form 8232) and insurance appraisals.

We keep your LGB trains running!

Call 770-886-6670 or email klaus@traincraftbyklaus.com

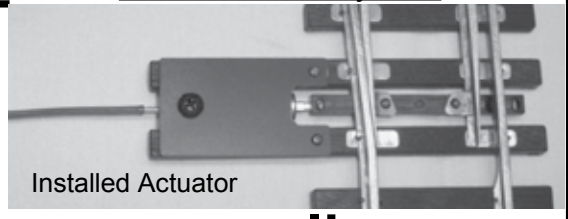
TrainCraft by Klaus® LLC
6585 Remington Dr, Cumming, GA 30040 • The Home of TechDesign USA, LP
PH: 770-886-6670 • FX: 770-889-6837
www.traincraftbyklaus.com • klausstork@earthlink.net

Sunset Valley Railroad

World's most complete code 250 track system

Thinking about powering your switches pneumatically? We offer a complete system, designed to be compatible with the Del Aire and EZ-Aire systems. Our actuators, switches and fittings are all brass and stainless designed for ½ million cycles, with no cheap plastic parts. Our hose is the highest rated U-V proof Polyurethane, proven in an outside environment. In short, our system is made to last for many years with trouble free operation. Installation is quick and easy. The system includes solenoid valves so you can control everything electronically if desired. Full details available on our website.

98% of our materials and 100% of our manufacturing proudly made in the USA


Installed Actuator

www.svrronline.com

See all our products on our website

Email sales@svrronline.com
Call 253-862-6748

ROUNDHOUSE

***Living Steam Railways* for SM32/SM45 & 'G' scale**

Doubleheader Productions. www.gaugeone.com
Tel/Fax: 214-769-1966 or Tel/Fax: 432-686-8883
East Boothbay Central Supply. Tel: 207-633-7703 or evenings: 207-633-4335 e-mail:scotia77@roadrunner.com
NGT Models. www.ngtmodels.com
Tel: 517-485-9104 e-mail: ngtmodels@aim.com
Quisenberry Station www.quisenberrystation.com
Tel: 703-799-9643 e-mail: turbohvn@aol.com
Sunset Valley Railroad. www.svrronline.com
Tel/Fax: 253-862-6748 e-mail: sales@svrronline.com
Texas Roundhouse.
Tel: 281-543-3028 e-mail: TexasRoundhouse@aol.com

Roundhouse Engineering Co. Ltd.
Tel: 011 44 1302 328035 - Fax: 011 44 1302 761312
e-mail sales@roundhouse-eng.com
www.roundhouse-eng.com

Designed, manufactured and tested in Doncaster, England.

A selection of our Line side accessories - See our website for more.

Making characters

A GARDEN RAILWAYS PROJECT BEGINNER

Modeling figures with Sculpey oven-hardening clay: Part 1

by Eric Schade | Phippsburg, Maine | Photos by the author

1. Rudolf and Big Joe prepare N° 1 for the road. These two characters were made from oven-baked clay and painted with acrylic paints.

Having some people around brings a model to life. They add interest and make the model look more realistic. I have built large-scale model tugboats for which I carved crew members out of wood. They were fun to do and added a lot of character to the boats. For my railway, I carved one guy while I was on vacation camping. The campfire wood happened to be basswood, which was great for carving.

These figures took quite a while to carve, though, and one mistake meant it was time to start over. Since then, I have been introduced to Sculpey. It is a clay-like product that you shape, then bake to harden and set the form. I have always liked playing with clay. I find it fun to smoosh it into a form that takes my fancy. Since finding Sculpey, I have made a number of characters for my railway (photo 1). Some are better than others, and all are individuals. I have found that the level of detail and perfection of these

folks matters little except when you get very close. Just having them standing around adds a lot.

Sculpey is one brand of a family of polymer modeling clays that can be hardened by baking in the kitchen oven. (The process I describe here could be modified for real clay fired in a kiln.) Sculpey comes in a variety of colors and textures. I have used two types—basic white Sculpey and Super Sculpey. Super Sculpey is more chip and shatter resistant and happens to be flesh colored and slightly translucent, which makes it a pretty good representation of Caucasian skin right out of the package. The white Sculpey is the color and consistency of chalk when baked and takes acrylic paints very well. There are enough colors of Sculpey available that you could clothe your figures entirely in Sculpey, but I will discuss painting them. Sculpey and similar products are available at most art- and craft-supply stores.

I start with a wire armature, or skeleton, to which I add the Sculpey clay to make up the basic body shape. Next, I use simple wooden tools to shape the clay and add details. When I am happy with the details, I put the figure in my kitchen oven for a few minutes to harden it. Then I paint faces and clothing with acrylic paints. While these are pretty easy steps, getting the various shapes and colors right is the trick.

Getting started

Some people can just visualize the person they want to make, go at it, and end up with a perfect figure. I am not so skilled. My approach was to look though some art books that discussed figure drawing (drawing people). There are some straightforward rules of thumb for getting the correct proportions. With the proportions basically correct, a model person will look fine from a reasonable distance.

If you know how tall you want the person to be, divide that height by seven (figure 1). A typical person's head is about one seventh of his or her total height. Shoulders, legs, and body can be worked out too using this rule of thumb.

I start by drawing my figures on paper. I work in 1:20.3 scale, so a six-foot man would be a bit over 3½" tall. My 1:32-scale tugboat crewmembers were about 2¼" tall; 1:24-scale figures will be about 3" tall. Obviously, people are all different shapes and sizes, so you can make women and children smaller, and that big fireman taller. My 1:20.3-scale figure will have a ½"-tall head, so I just start with the ground line, then draw seven lines, each a half an inch apart, above that.

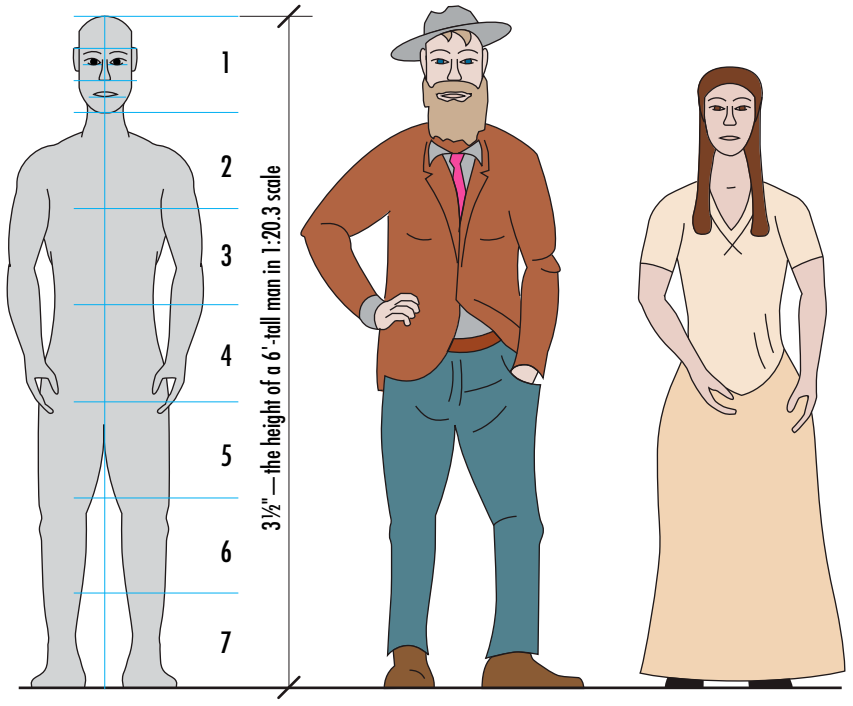


Figure 1

The basic proportions of a human body can be broken up into seven divisions, each the height of the person's head. Proportions of the rest of the body can be drawn based on these divisions. Figures made for 1:32 scale are about 2¼" tall; for 1:24 scale they should be about 3" tall; and for 1:20.3 scale, about 3½" tall.

ILLUSTRATIONS BY THE AUTHOR

With the basic lines drawn, I can draw the rest of the body in proportion. Shoulders are about half a head below the chin; the middle of the chest is about two heads down; the belly button three heads down; and so forth. The width of the shoulders is about 1¾ heads wide, while hips are somewhat less.

A skinny, muscular, or overweight person can be drawn on variations of the same theme. Slightly wider shoulders would make a strong fireman. His wife, who only comes up to those shoulders, is still perfectly proportioned. A big belly and fancy clothes suit Harold A. Topsham, the big man in town.

The head and face, likewise, have basic proportions. I divide the top seventh (the head) into three equal sections (see figure 2). Drawing a circle through the top two thirds makes the top of the head. Trim a little off the sides of the circle to be the temples. Eyes are just above the middle of the middle section. The bottom of the nose starts at the top of the lower third and rises to the brow, just below the top of the middle third. The mouth is in the middle of the bottom third, with the chin at the very bottom. Hats, hair, and beards can be added to this basic outline.

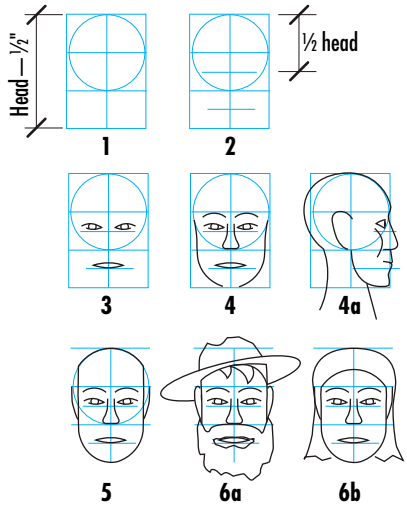


Figure 2

The basic proportions of the human head can be broken up into three vertical divisions. Locations of the eyes, nose and mouth can then be worked out.

2. Start with a wire stick-figure armature, using your drawing as a guide.

3. Aluminum foil can be used to bulk-up the armature. The long legs are inserted into a wooden block, which serves as a work stand.

These basic proportions can be "bent" to pose figures in other positions, such as sitting or shoveling coal. I try to draw out what I want as much as I can. However, I do not want to spend all day drawing so I keep it simple. I do add clothes and hair to the drawing, and try to capture the body type I am looking for.

If you want to play a bit, the basic proportions can be dispensed with to some extent to get a caricature. Small children and most cartoon figures have oversized heads. Super-heroes have oversized upper bodies, while elegant ladies have long legs and dresses. You can come up with any proportions that fit your ideals. Stay closer to the recommended proportions for realistic folk; stray as far as you want for fun. I look at old photos that show people, and select characters that I like. I adjust my drawings to match the poses, body type, and style of dress as well as I can. I loosely based Harold A. Topsham on photos of J.P. Morgan, king of the railway financiers.

The armature

With the drawing in hand, it's time to start making the figure. I start with an armature formed from twisted copper wire (photo 2). I fold a length of wire in half, twisted to make a loop "head" and spine. I leave the legs extra long for now. Then I twist on a second wire to form the arms. I check the size of my armature against my drawing.

I can then bend the stick-figure body to pose it. I trim the wires of the arms so that they come out into the hand but not as far the fingers. I typically bend the legs slightly at the knee, maybe bend one leg forward and one back, as if walking, and extend an arm to hold something. If I am making an overweight guy like old Mr. Topsham, or a lady with a long dress, I use crumpled aluminum foil to bulk out the armature to more closely approximate the finished shape.

I usually drill some holes in a block of wood and stand the figure on the block by inserting the over-long legs into the holes so that the figure is standing the right height (photo 3). The block gives me something to hold on to while I work, without squishing the figure.

In the next issue, I'll discuss adding clay to the armature, adding detail to the figure, then baking, and painting it.

Garden RAILWAYS

LEARN MORE: To purchase a PDF of another figure-making series by Ray Dunakin, visit www.GardenRailways.com and click on "Downloads" under "Shop."

Sculpey is one of several brands of polymer, oven-bake clay. It comes in a variety of colors and textures.

G Scale Junction

Where G Scale comes together!
GIFT CERTIFICATES AVAILABLE
We're happy to help beginners or experts
gscalejunction.com
WE BUY COLLECTIONS
DISCOUNTS ON LARGE ORDERS & MULTIPLE ITEMS

185 Westgate Drive, Newark, OH 43055

800-311-9448 740-967-7300

HOURS: Tues.- Fri. 11:30 - 6 Eastern Time Sat. 12:00 - 4
and by Appointment

sales@gscalejunction.com

WATCH FOR SPECIALS ON OUR WEBSITE

Low Prices - Low Shipping Prices - Personal Service - International Orders Welcome

Spectrum

NEW 1/20.3 CLIMAX W/ DCC & SOUND $796

BACHMANN

NEW 2-4-2T -$179

INDUSTRIAL MOGUL 164.95

WOODSIDE REEFERS $97.95
SPRUNG TRUCKS
METAL WHEELS

AML

1/29 SCALE

BETHGON II COAL PORTER...$110.95 BNSF - NS - UP - CSX - BN - CNA - WisPwr - Conrail

FRISCO, MKT & MILWAUKEE RD IN STOCK

PS2-CD 3-BAY COVERED HOPPER $127.75 4 ROAD NUMBERS PRE-ORDER NOW
BNSF - ATSF - N&W - UP - CSX - BN - CN - CNW - Conrail - D&RGW - DATA ONLY

LOW PRICES ON ALL LGB!

LGB

NEW LGB! WITH SOUND!

SUMPTER VALLEY - $1727.95

WHITE PASS & YUKON-$1008

F7 A+B - $1275.95

RhB THUSIS $1008

SHOP ANY TIME AT... gscalejunction.com

ARISTO-CRAFT MALLETS, PACIFICS & CONSOLIDATIONS IN STOCK

NEW DASH-9's: BNSF SWOOSH, BC RAIL, CN ANNIVERSARY - $409.00

100 TON HOPPERS $79.50 - SOO W&LE - MILW RD.

ARISTO CRAFT TRAINS

NEW 2-BAY HOPPERS $64.50

B&O, READING, LACKAWANNA, ERIE, SOO, MoPAC, NP, P&S

NEW

LIVE STEAM MIKADO LIMITED QUANTITY- ONLY $1350.00

PCC TROLLEYS $229
ST. LOUIS - CAPITAL TRANSIT
MINNEAPOLIS - MONTREAL
CHICAGO CTA - SAN FRAN

ARISTO CRAFT TRAINS

JAN.-FEB. REBATE OFFER: BUY ANY 4 BOXES OF TRACK AND GET A FIFTH BOX FREE FROM ARISTO-CRAFT!

60' BOX CAR $94.95
NEW USA TRAINS
BEER CAN TANK CAR $89

USA TRAINS

PIKO

LOW PRICES ON PIKO BUILDINGS, TRAINS, & BRASS TRACK

PENNSY HOPPERS! $33.95!

SALE: $10 OFF ANY PIKO BUILDING ORDER OVER $110.00

SOLID BRASS GERMAN TRACK!
4' STRAIGHT TRACK - $20.20
R-5 CIRCLE - 8' dia.-$181.00
R-5 SWITCH - 8' dia.- $50.40
w/ 7.5 deg. 8' dia. CURVE

NEW D&RGW MOGUL! ONLY $159

MACK LOCO $49.75

HLW

THE 2 TRUCK BIRNEY!
DIRECTIONAL & INTERIOR LIGHTING
NEW $339.95

EVERYTHING YOU NEED FOR YOUR GARDEN RAILWAY 1/32, 1/29, 1/24, & 1/20.3

TRACK RAILCLAMPS BRIDGES STRUCTURES LOCOMOTIVES FREIGHT CARS PASSENGER CARS FIGURES ACCESSORIES

ARISTO-CRAFT, BACHMANN, USA TRAINS, LGB, HLW, PIKO, AML, AMS, MICRO ENGINEERING, SUNSET VALLEY ACCUCRAFT, WOODLAND SCENICS, SPLIT JAW, MTH, BRIDGEWERKS, JUST PLAIN FOLK, KADEE, PRIESER, POLA, GRANDT LINE, PHOENIX SOUND, DALLEE ELECTRONICS, QSI, NCE, MRC, ACCUCRAFT

PRICES AND AVAILABILITY SUBJECT TO CHANGE WITHOUT NOTICE OTHER SCALES AVAILABLE GRM 02/2012

A GARDEN RAILWAYS PROJECT BEGINNER

Some added details and a new paint job transform a plain-vanilla speeder into a unique vehicle with lots of character.

Kitbashing
J.S. Woodcrafts' speeder

A few details and a new paint job transform this vehicle

by Alain Gavard | Montbard, France
Photos by the author

1. The speeder, as it arrived from J.S. Woodcrafts.

2. New wood decking is being applied and some of the additional detail parts have been gathered.

3. Details were placed temporarily. When all was well, they were glued in place.

4. The underbody also received some new details, including an air tank and brake shoes.

5. The right side of the finished model. Note the ladder slung on the canopy frame.

I purchased a speeder from J.S. Woodcrafts. The model came without couplers but was supplied with the canopy (photo 1). I wanted to modify it for use on my railway. This is how I did it.

I first replaced the slab sides of the cab with individual boards. This alone did much to help the appearance of the vehicle. I then relocated the headlight, which was originally centered on the front beam, to one side. Doing this gave the unit distinctly more character.

I made a new wooden floor with thin strips of wood, .315" wide. I also added detail parts from Ozark Miniatures and Trackside Details. These included tool boxes, a bell, and miscellaneous other parts (photo 2). To make a new exhaust pipe, I used a brass tube, ⅛" diameter x 3" long. All of the major components were trial-placed in position before being permanently attached to the speeder. When I was satisfied with the way everything looked, the detail pieces were glued in place (photo 3), painted, and decorated. I also detailed the underside of the model, adding brake shoes, an air tank, and the engine sump (photo 4).

6. The left side of the model. Ropes, chain, and passengers finish off this utility vehicle.

To complete the speeder, I added additional details, including drums, barrels, cans, milk cans, a chicken coop, lamps, a bag of flour, a bucket, a rerailer, a jack, some rope, chain, and a ladder. The link-and-pin couplers and the bell are original LGB parts (photos 5 and 6). A windshield wiper on the front window and handrails on the cab finished the detailing.

The speeder then received a new paint job as well as its nickname, "Old Sam." Some passengers and a dog got on board and the speeder was ready for its maiden trip over the rails.

OZARK MINIATURES

THREE GREAT COMPANIES
$10.00
Master catalog
ONE GREAT PLACE
435-586-1036

Detail Parts and Kits

1100 detail parts for your rolling stock and layout. Need shovels, signs, grab irons, couplers, NBW's, pulleys, queen posts, lamps, benches, pump hand cars, buckets or chain? How about strap steps, brake sets, tools, headlights, rerails, gauges, cannons, loco bells, windows, Anvils, postdrill, or air-tanks? Kits for logging, mining, GN15, boxcars, donkey engines!

1:20.3 10' Flat car, Tool car, Lube car, Sand car & Crane car. All of our kits are 100% complete. With couplers, wheels, every thing but glue. 31 ft car kits too! **www.ozarkminiatures.com**

3461 S 5225 W
Cedar City, UT 84720 Phone 435-586-1036
fax 435-586-0580

PRECISION PRODUCTS

3 D Plastic Veneer Sheets

UV resistant, waterproof and weather-proof. 20 year life brick, corrugated metal, stone, tile, shingles, lap siding. *Many easy to build plans* Tunnels, bridges, doors, windows, signs. Build permanent outdoor structures with a ruler, knife and glue.**www.aiii.info**

AIR-EZ

GRP

Air powered products for Track Switches and Automation
NO-ONE BEATS OUR PRICES
1/16 Tubing 500FT AIR-EZ $89.98 Others $149.95
We have all the parts and accessories you need for complete operation, including electric over air for remote control DCC, or other remote systems.
Complete design assistance available, custom control panels, graphics, enclosures and much more.
www.grrps.com

Massoth®

With a Passion for Garden Railroading

check our website at
www.massoth.com

· Visit **www.massoth.com** to find an **Authorized MASSOTH US retailer near you!** · Feel free to contact us via eMail at **sales@massoth.de** ·

QUALITY MADE IN GERMANY

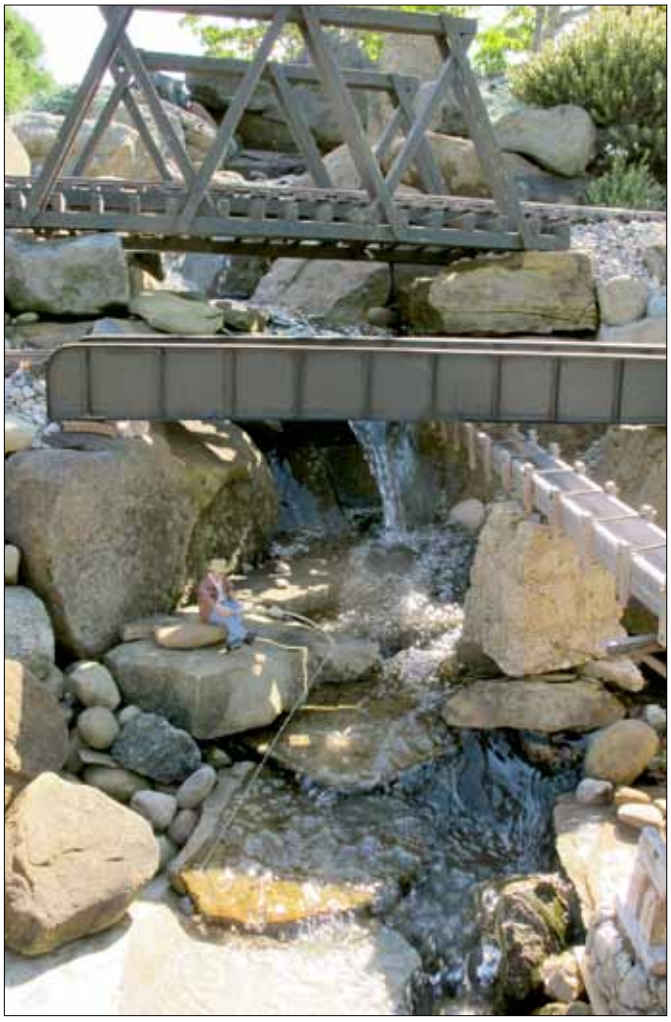
2-year warranty
for further details visit www.massoth.com or www.massoth.de

DiMAX R/C Navigator
~~449,-~~ USD 399.-*
* MSRP

Massoth Elektronik GmbH · Germany · Phone +49-6151-35077-0 · sales@massoth.de · www.massoth.de

GRM.2012.1

Stream- and pond-edging ideas



1. A mountain river running through angular rocks produces foaming rapids and cascading falls. This is the Big Hoot River at Hootenanny Falls on the author's Hoot 'n' Holler Railroad.

2. A meandering, flatland stream will be lined with stones of various sizes, rounded by the action of the water. This is a view of Abner Creek on the author's former Rustin & Decrepit Railroad.

PHOTOS BY THE AUTHOR EXCEPT WHERE NOTED

Water features in our garden railroads are popular for good reasons. They add the realism of real water, moving and highly reflective, and they are a delight to the eye and ear. At the same time, they present unique challenges in building and maintaining. One of these challenges is getting the water feature to blend in with the rest of the landscape, to appear like it belongs in the setting without that "pasted in" look. This has a lot to do with the edging material used and the artistry in effectively handling the interface between two different elements, land and water. I'll share some ideas on the subject and give you a look at a unique approach to the challenge.

Choosing the right edging material

The choice of material to use in edging a water feature depends a lot on the surrounding landscape. A stream that runs through a rugged, stony terrain will be lined with rocks that match the surrounding landscape. This situation is typical of mountain streams that cascade down steep inclines (photo 1). Streams that meander through more level terrain will be lined with rounded, water-weathered stones. A mix of smaller and larger stones will add to the interest and realism of the stream bed (photo 2). A stream that flows through an environment that flourishes with plant life will be lined with water-edge vegetation.

Ponds, like lowland streams, are usually surrounded with vegetation, unless they represent high mountain lakes where vegetation is sparse. Most natural ponds have dense plant populations on their banks, whereas impounded ponds may have

3. An impounded pond may be edged with man-made material (concrete or mortared stone walls) or natural material existing in the area. This is the mill pond of the Hoot Valley Lumber Company, with water for the log flume supplied by the Little Hoot River.

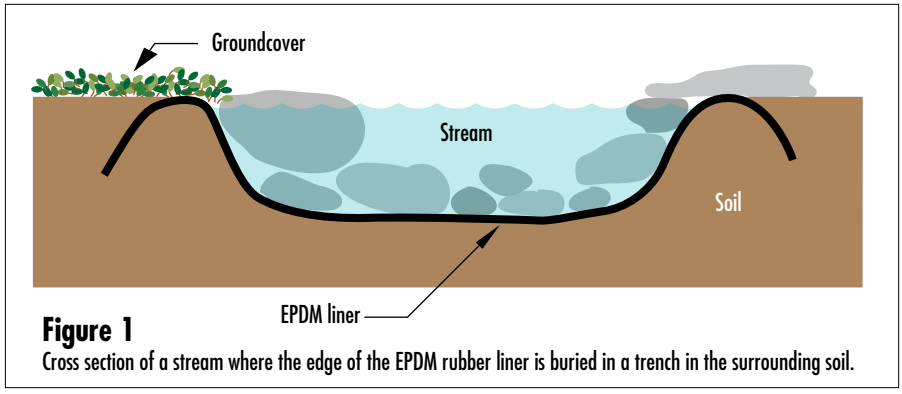


ILLUSTRATION BY MARC HOROVITZ

Figure 1
Cross section of a stream where the edge of the EPDM rubber liner is buried in a trench in the surrounding soil.

4. The surrounding vegetation is about to overrun this lazy little valley stream. The Haffa Mill's waterwheel is powered by water from the Li'l Abner Creek, on the R&DRR.

gravelly shores and rock-lined edges, along with some plant material. One example of an impounded, or dammed, pond is a mill pond, providing hydraulic power for a grist mill or a sawmill. The material lining the shores of these water features will depend on where they are located. The nature and look of the landscape around them should blend with the edging (photo 3).

Rocks or no rocks

One of the limitations that makes it hard to disguise our water features' edges is the lining material that is used. EPDM (ethylene-propylene-diene-monomer) rubber and polyvinyl plastic liners must be anchored at the edge to keep them from rolling or sliding back into the waterway. This makes the use of rocks more or less essential.

However, there is an alternate method of anchoring the liner without relying on rocks for anchoring weight. This involves burying the edge of the liner in a trough, using the weight of the dirt to hold it in place (figure 1). The surrounding soil will need to be lower than the shoulder of the liner to keep dirt from being washed into the water. Groundcover or other low vegetation can be planted in the soil near the buried liner and will eventually grow over and hide the liner edging. Although soil doesn't actually touch the water's edge, this technique comes close and makes the waterway look natural.

One of the streams I built on my previous garden railroad did have soil and rocks at the water's edge. This was not a recirculating system (which must be maintained dirt-free for the pump's sake), as I used water from the nearby lake, pumped to the headwaters of the stream. Vegetation grew thickly along and into the stream, giving it a wetlands-waterway look (photo 4).

A hanging garden

One of the more unusual ways of disguising a pond edge that I have seen is used by Mark Langan, of Mulberry Creek Herb Farm. He has a preformed plastic pond shell in his garden railway that is typically difficult to blend with the surrounding landscape (photo 5). His technique uses chicken-wire forms that he drapes over

MARK LANGAN

5. The pond on Mark Langan's garden railroad is made with a preformed plastic shell. Note that the water runs into the pond over river gravel, which was glued to the rubber liner of the stream bed.

MARK LANGAN

6. To disguise the unsightly plastic edge of the pool, Mark Langan uses chicken wire formed into a support for poolside vegetation. This will also hide the tube carrying water from the submerged pump to the top of the stream.

the edge of the pond (photo 6). Water-loving plants, with their root balls wrapped in course sphagnum moss, are worked into the wire webbing. The moss will wick up water from the pond to supply the plants. Golden spikemoss, a.k.a. clubmoss (*Selaginella braunii* or *S. kraussiana* 'Aurea', Zones 6-11) can be used as filler, providing a subtle background for the more showy plants (photo 7).

Some of the plants Mark Langan finds that work well in this method include dwarf horsetail, or scouring rush, (*Equisetum scirpoides*, Zones 5-11), Japanese mini sweet flag (*Acorus gramineus* 'Oborozuki', Zones 4-11), and small hostas, such as Lemon Frost, Baby Bunting, and Teeny-Weeny Bikini (all about 2" tall and rated for Hardiness Zones 5-9). This is a labor-intensive process that will need to be, at least partially, repeated each year. However, the lush look and convincing pond-edge treatment make it worth a try.

MARK LANGAN

7. Here the chicken wire has been "planted" with a nice variety of water-loving vegetation. The green, stick-like clumps are dwarf horsetail; the yellow-green, grass-like clumps are Japanese mini sweet flag; the little round-leafed groundcover is New Zealand mini Gota Kola (*Hydrocotyle nova zealandiae*, Zones 9-11); the moss-like material surrounding these plants is golden spike moss; and there are three small hosta plants at the top.

Other edging

In nature, streams also run through dense, wooded areas. It's not possible, with our usual lining materials, to grow scale trees on the banks of our streams and ponds. However, this can be suggested with dry stream beds. Miniature trees and shrubs can be planted on the very verge of a dry stream bed. The rounded stones along the edge of this represented stream can nestle right up against the roots and trunks of trees. The effect evokes a wilderness seasonal stream cutting through a stand of conifer trees (in the west) or willows and alders (in the east, photo 8).

8. This dry stream bed is in the seasonal garden railroad of Holden Arboretum in Kirtland, Ohio. Conifer trees line the stream, giving a realistic representation of a western mountain scene. The structures were built by Paul Busse's Applied Imagination crew.

Compound locomotives

Compounding is a method by which steam is used, then re-used to move the pistons in a steam engine. The thinking was that the large pressure/temperature drop associated with the expansion of steam in one cylinder could be broken into a series of smaller pressure/temperature drops over multiple cylinders, resulting in better steam (and hence fuel) economy. Compound steam engines were more commonly used in steamships, where the steam was used three or four times before it became exhaust.

Compound steam locomotives have both high- and low-pressure steam cylinders. Steam from the boiler is first admitted into a small diameter, high-pressure cylinder. It is then piped to a low-pressure cylinder with a larger diameter, where it is used a second time. The relative size of the high-pressure and low-pressure cylinder diameters was determined by the expansion of steam in both cylinders (an assignment I remember doing as part of my mechanical-engineering degree).

Compound steam locomotives were first devised in the 1850s and were very much in style in the late 19th and early 20th centuries. A variety of configurations of high- and low-pressure cylinders were employed. In the simplest case, there would be a high-pressure cylinder on one side of the locomotive and a low-pressure one on the opposite side (figure 1). In other cases, there would be two high-pressure cylinders inside the frames and two low-pressure ones on the outside, as shown in figure 2. Another approach was to use compounding on articulated locomotives, with the high pressure cylinders being used on one power chassis and the low pressure on the other, as was done on Mallet articulated locomotives (figure 3).

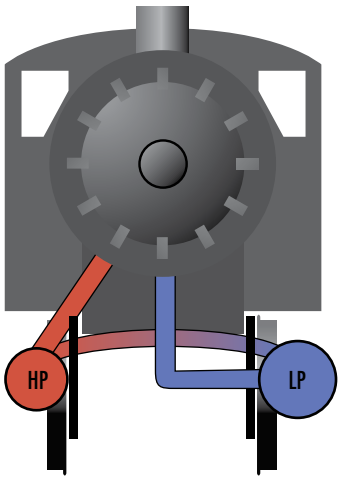


Figure 1
One high-pressure cylinder on one side and one low-pressure cylinder on the other

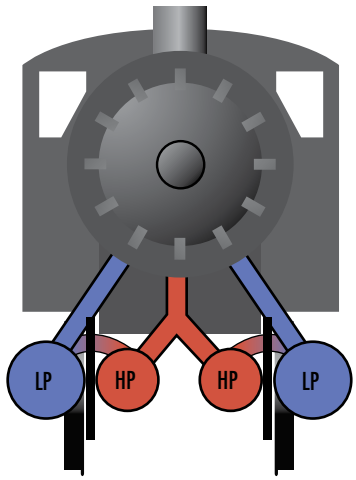
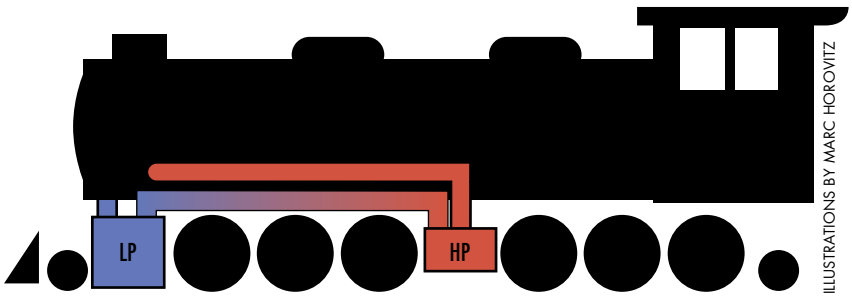


Figure 2
Two high-pressure cylinders inside the frames, two low-pressure cylinders outside



ILLUSTRATIONS BY MARC HOROVITZ

Figure 3
Mallet articulated locomotives have high-pressure cylinders in the rear, exhausting to low-pressure cylinders in the front.

And what became of compound locomotive design? Unfortunately, the mechanical complexities of compounding on locomotives seemed to outweigh the fuel-economy benefits, so it was abandoned in favor of other technological advances in the 20th century. It is interesting to note, though, that one exception was the Norfolk & Western Railway, which continued to build its own compound Mallet 2-8-8-2 locomotives until the early 1950s.

Fortunately, the science for full-size compound locomotives also works well for small-scale live steamers. Compound locomotives are a popular subject for the highly skilled scratchbuilder, with the complexities of multiple cylinders and such providing a lot of challenges. A number of years ago, I recall seeing a superb example of an 0 scale, live-steam compound 2-10-10-2 Mallet crafted in stainless steel by Charles Mynhier of Houston, Texas. It was a powerful engine that ran at an incredibly slow speed.

Commercial live-steam manufacturers—specifically Regner of Germany and Aster of Japan—have produced models of compound locomotives. The first commercial small-scale compound live-steam locomotive was Aster's 1:32-scale model of a Swiss 4-6-0 from the Juri-Simplon Railway in Switzerland, released in 1986. It has fours cylinders, with .394"-diameter high-pressure cylinders and .512"-diameter low-pressure cylinders. Both Aster and Regner have produced models of compound Mallet articulated locomotives: a Bavarian State Railways 0-8-8-0 and a narrow-gauge 0-6-6-0, respectively. Both locomotives are impressive working models of an interesting technological development of the steam age.

BRIDGE MASTERS

www.bridge-masters.com

Serving You Since 1991 With Over 65 Products.

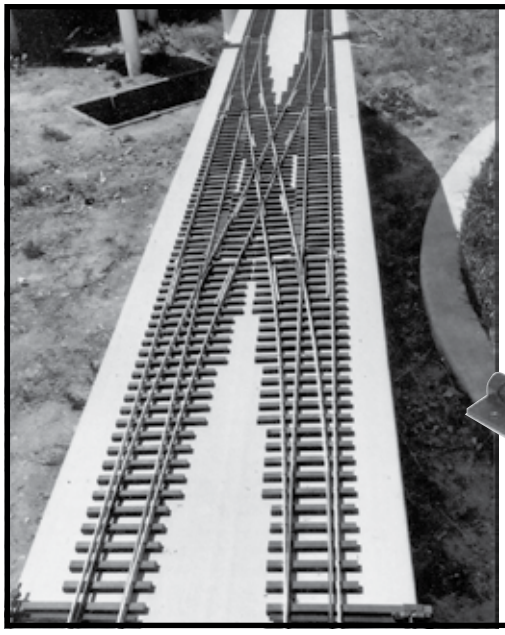
Diesel Tank & Stand
Price: $49.00 + Shipping
Fully Assembled
(Tank Graphics Vary)

Additional Products:
Culvert Bridge • Sub-Supported Bridge • Telephone Poles • A-Frame Bridge • Right of Way Signs Retaining Walls • Brass Structure Lights • Warren Thru Bridges • Portals/Abutments • Modular Deck Trestles (straight & curved) • Windmill • Bumpers Coal Bin • Tank Stand • Loads • Sheds • Platform Dock Set • Fencing

All products are pre-assembled with nails and are dark semi-transparent stained.

Send us a large SASE for complete product line and pricing.

1077 Promenade Ave., Placentia, CA 92870 (714)-985-9007 fax (714)-985-1976



LLAGAS CREEK RAILWAYS

Serving the hobby for over 25 years

www.spaceltd.com
Manufacturing web site

www.llagastrack.com
Sales web site

Rail to ship in 2-3 working days, ARO • Track to ship in 3-6 working days, ARO
Custom built switches to ship in 3-6 weeks. • 443-506-1008 • pb6655@hotmail.com

NEW item for 2012!
The Llagas Creek spring-loaded ground throw. In production now!
See your dealer today!

NEW lower prices on Nickel Silver and Aluminum track & ties!
EX = P/N 250NSBOX A box of 10 code 250 NS track with ties of your choice is $399.00

R/C & LIVE STEAMERS
15,000 ft code 215 & 250 alum rail in stock. All rail & ties produced in the USA
Full line of Nickel Silver products available Gauge 1:32, 1:20.3 & "G" Scale products
Go to www.llagastrack.com to find a dealer near you.
Major credit cards accepted

604-596-9201 EXT.522

www.artknapptrains.com

ArtKnapp Trains

We Stock All Major Brands Of G Scale Trains Thousands of items In Stock

We Ship World Wide

E-Mail Us At: info@artknapptrains.com

Your #1 Source for G Scale Trains

Come Visit Our Running Indoor and Outdoor Train displays

CP Rail Green Multi Mark 40'

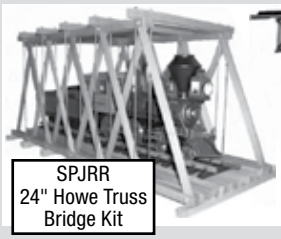
Ontario Northland 40' Box Car

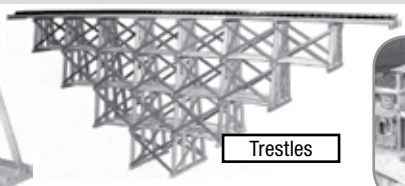
Canadian National 40' Box Car

Blow Out $49.97 Ea.

For these and other G Scale items visit our store located at:
4391 King George Hwy. Surrey B.C. Canada
(Just 5 min. from the Washington US border)

We Accept


SPJRR
24" Howe Truss
Bridge Kit


Trestles

Crystal Palace Hotel

Wood Kits & Scale Lumber

COLOR Catalog: $5.00 U.S. only
Including: *Craftman Style Kits, Premium Cedar Scale Lumber, Bridge & Trestle Options, And More!*

Smith Pond Junction Railroad Products
(763) 354-6080 ▪ 2245 141st Ave N.W. ▪ Andover, MN 55304

www.spjrr.com

PRODUCTS, INC. split jaw™

www.splitjaw.com
splitjaw@railclamp.com
1-877-762-4822
10am to 2pm (PST)

Engine Carrier/Loader
Reversing Loop Units
Reversing Units
Rail Clamps
EZ-Loaders
Roadbed
Railbed
Bridges, Trestles, Portals, and more

EZ-LOADERS to easily place all your rolling stock on to the track.

The REVERSING UNIT works by sensing a lack of current flow. Therefore, travel time and distance traveled between destinations are not relevant. You can have multiple destinations.

We have Clamps designed for bridge lift outs. The rail is held in place by a spring loaded ball.

We make many types of clamps. WHEEL STOP clamps, like all of our clamps, are made with quality stainless steel screws.

We make G-Scale *WORK*

REINDEER PASS RAILROAD
at
Kidman Tree Farm
"Full Line G Scale Dealer"

EXCLUSIVE COVERED HOPPERS SHIPPING SOON!

JANUARY SALE

BACHMANN K-27'S
$674.89

BACHMANN RAIL TRUCKS
All in Stock $139.89

ARISTOCRAFT E-8'S
SP-UP-ATSF $349.89

* Offer Good for In-Stock Items Only *

Check Out Our Other GREAT Prices At:

Reindeerpass.com | 800-266-4337 | 515-984-6946

3665 NW 98TH AVENUE * POLK CITY, IA 50226

AML, ACCUCRAFT, AIRWIRE, LGB, ARISTOCRAFT, BACHMANN, DIGITRAX, HLW, KADEE, SPLIT JAW, TRAIN LI, MASSOTH, PIKO, JUST PLAIN FOLK, OZARK MINIATURES, SOUND TRAXX, & USA TRAINS

ONLINE STATION

VANCE BASS

Admit it: you like trains but you *love* the locomotives. Nobody sits around enthusing about the beauty of the flatcar or the magic of the boxcar. Nobody sells calendars with pictures of the "most beautiful hoppers in the world." But get a group of train nuts started on their favorite locomotives, and you'll be there the rest of the afternoon.

With that in mind, here are some websites that will help meet that yearning for the Perfect Steam Locomotive.

Ron Ziel may be familiar to you as the author and photographer of many wonderful books about locomotives. The Internet has allowed him to take his photographs (over 25,000, he says) and essentially make one huge, searchable book with all of them: *ronzielsteam.com* In addition to his own fabulous photos, his historic photo collection is also there.

Do you ever have those dreams where you open up an old shed and find a like-new 1953 Corvette or a forgotten biplane? No? Maybe it's just me. If that sort of thing interests you, you can watch some lucky fellows in Sweden bust the lock off a barn above the Arctic Circle and haul out three pristine, hundred-year-old steam locomotives, stored there as emergency backups since the Cold War. It's narrated in German, but you don't need to know the language to understand the magic of the video. *youtube.com/watch?v=hh-7kiswF2k*

On the subject of hundred-year-old locomotives, here's a fine film showing a large assortment of narrow-gauge engines used by the French Army in the Great War of 1915-18. This 15-minute video is comprised of many short clips showing locos from French, English, and US builders. In addition to the expected steamers, there are scenes showing the earliest internal-combustion locomotives. *www.ecpad.fr/les-petits-trains-de-la-grande-guerre-2*

Closer to home, the Cumbres & Toltec Scenic Railroad has some great video of the restoration of their famous K-27. Go to *youtube.com/user/CumbresToltec* and search for "463." Alas, the soundtracks are marred by lots of diesel sounds (from the equipment used in place of a shop crane), but it's great stuff!

AMERICAN
LAWN LIGHTS
Lighthouse Replicas
By Steve Wright
Featuring over 50 working replicas of
Historic American Lighthouses in "G" Scale
The perfect compliment to your
Water Feature or use as an Aero-Beacon
on your layout
914 245-0195
www.americanlawnlights.com
See Me January 28 & 29, 2012 @
Amherst Railroad Hobby Show, W Springfield, MA

AMERICAN MADE
STEEL BRIDGE

LENGTH: 54 INCHES • WIDTH: 5 INCHES
HEIGHT: 6 INCHES • PRICE: $200 + S&H
AVAILABLE IN PAINTED, POWDER COATED,
OR STAINLESS STEEL - HOLDS 25 LBS
CUSTOM LENGTHS AVAILABLE
(863) 299-2588 | F (863) 299-6362
P.O. BOX 151 WINTER HAVEN, FL 33882-0151
EMAIL: OBRIDGE@QUALITYADJUSTMENTS.COM
WWW.AMERICANMADESTEELBRIDGES.COM

Selling your trains?

We take consignments & buy train collections!

All collections have great stories. We want to leave your memories intact. Expect to be treated fairly, professionally, and confidentially. No collection too big, **we will pack and pick up your trains!** With 30 years experience, we know G Scale Trains!

Web: www.trainz.com/sell
Email: sellyourtrains@trainz.com
Phone: 1-866-234-2800 Fax: 1-866-935-9504

TRAINZ
QUALITY, QUANTITY, VARIETY & SERVICE

DIECAST DIRECT INCORPORATED
Dept. GR2012
3005 Old Lawrenceburg Rd.
Frankfort, KY 40601

Call US Toll Free:
1-800-718-1866
M-F 9am-5pm EST

Ask for Free Catalog with Your Paid Order.

NEW!

$8.95 S&H

FORD F-250 PICKUP
WITH GENERATOR TRAILER

NEW! #FG10-3950 - DOOSAN - $62.95 + S&H
1930's AUTOMOBILE TIRES 5 MM X 25 MM
#AHM-G-102-12 TIRES - 1:24 SCALE - $5.95 + S&H

NEW! BICYCLE/MOTORCYCLE TIRES 3 MM X 22 MM
#AHM-G-104-16 TIRES - 1:24 SCALE - $5.95 + S&H

www.DiecastDirect.com/grm

Suspended
Railway
Systems
for
Businesses
and
Residences

Please see web site for details.

Loco-Boose Hobbies
Sales and Mfg. • 6637 76th Lane SW, Olympia, WA 98512 • (360) 754-5596
Sales • 2049 Uplands Circle, Estes Park, CO 80517 • (970) 577-0583
website: www.Locoboose.com • e-mail: duane@locoboose.com

HOCKLEY VALLEY RAILROAD

Canada's Only
Train Shop
and Gallery!
featuring
Wentworth
Folkins

We Ship
Everywhere

www.hvrr.ca
trains@hvrr.ca
1 888 942 9900
705-435-7024

SwitchCrafters
ALBANY, OREGON
getting you on the right track

- Featuring -
The latest composite tie materials with embossed wood grain face!

Everything for the garden railroader!
* *Turnouts:* Aluminum, Nickel Silver, & Brass, in code 215, 250, & 332
* *Muli-radius turnouts*
* *Enhanced RailBoss ESC's* for battery powered Loco's
* *Aluminum Rail* in 215, 250, & 332
* *Micro Engineering* products and accessories
* *"The Spiker"* - 3/8" spiking tool - Plus much more!

Lowest Prices!

www.SwitchCrafters.com

Have questions?
info@SwitchCrafters.com
541-990-4455

IF YOU CAN DREAM IT
WE CAN BUILD IT
CUSTOM Structures Tanks, Silos,
Diecast, Motorization & Accessories

Custom 1957 Log Truck

MANY SOUND MODULES IN STOCK
Visit Our Web Site At:
jswoodcrafts.net
Please send $4.00 for a CD.
J.S.WOODCRAFTS
P. O. Box 621, Lomita, CA 90717-0621
(310) 539-4246 JSWOODCRAFTS@sbcglobal.net

Introducing
RailLinx
by RCS America
The New RailLinx Throttle puts the "Ease" in hand held operation!
Take a test drive today!
Soft Membrane Pillowtop Keypad.
900Mhz Transmitter & PCB Receiver.
16 Locomotive Operational Control.
1/4 Wave Monopole Antenna.
5 Additional Sound Triggers.
Remote Trackside Switch Control.
9V Lithium Battery for years of runtime.
Automatic 30 minute TX shut-off.
Easy loco "Recall" with horn trigger.
Contact one of our distributors for details.
NWRCS, Dave Goodson - 425-823-3507
dave@remotecontrolsystems.com
RCS of NE, Don Sweet - 603-321-1347
don@remotecontrolsystems.com
G-Scale Installations, Robert Buck - 717-741-3060
robert@gscaleinstallations.com
Sign-up for our monthly newsletter @
www.remotecontrolsystems.com
Made in the USA

AMHERST RAILWAY SOCIETY
RAILROAD HOBBY SHOW
January 28 & 29, 2012
Eastern States Exposition
1305 Memorial Avenue
West Springfield, MA 01089
Better Living Center ~ Young Building
Stroh Building ~ Mallary Complex
Our Railroad Hobby Show Features:

• more than 35 operating layouts.
• G, O, S, HO, N & Z Scale.
• manufacturers, displays, model dealers, booksellers, railroadiana, clinics, live steam.
• historical societies and railroad industry representatives.
Saturday 9 am - 5 pm • Sunday 10 am - 5 pm
Daily Admission $10.00
Children 15 and under FREE when accompanied by an adult.
Tickets on Sale 1 hour before show opens
Visit us at: www.AmherstRail.org

EVENTS

15-22 January, 2012: International Small Scale Steamup, Diamondhead Resort, Diamondhead, MS. Jerry Reshew, 5411 Diamondhead Drive East, Diamondhead MS 39525 • *reshew_j@bellsouth.net*

11-12 February, 2012: 10th Annual Gateway Garden Railroad Large Scale Winter Meet, Mariner's Village Inn & Suites, Mariner's Village, Carlyle, IL. Ric Golding • *Ricgolding@yahoo.com* • 618-594-3902 or Denny Karner • *dkarner@charter.net* • 636-926-3550.

10-11 March, 2012: 9th Annual Rails in the Garden Tour, Tucson, AZ. Tucson Garden Railway Society. Info: *www.tucsongrs.org*

6-8 July, 2012: West Coast Regional Meet, San Diego Garden Railway Society, San Diego, CA. Info: 619-479-9164 • *bonitagardentrains@cox.net*

14-18 August, 2012: National Garden Railway Convention, Chicago, IL. Mary Lou Lienau • 630-985-2057 • *info@2012ngrc.com* • *http://2012ngrc.com*

Future Garden Railway Conventions
2013: Cincinnati, OH, June 5-9
2014: Tampa, FL, May 4-10
2015: Denver, CO
2016: Bay Area, CA

Event notices are published at no charge. Due to space limitations, we will accept, at our discretion, listings that pertain to predominantly garden-railway or small-scale-live-steam events. Listings that reach us before our deadline and fit the space available will be published. Send listings to *Garden Railways*, PO Box 460222, Denver CO 80246, or e-mail them to *mhorovitz@gardenrailways.com*.

Track-related articles

We are interested in publishing articles on track laying, ballasting, rail joints, outdoor track wiring, and/or other track-related issues. If you have an article in mind, please drop us a note outlining what you have in mind to Marc Horovitz at *mhorovitz@kalmbach.com*

The best LED lighting strips!
Super Bright with adjustable constant intensity.

Illuminate your cars, buildings, & other items.
Powered with track, batteries, or a transformer.

Length	Warm#	Cool#	Amber#	$ each*
2 to10"	2379	2380	2381	34.95
9 to 18"	2389	2390	2391	54.95

All RL-LED boards are ½" wide.

Sound Systems for all locomotives.
Easy installation. Real sounds.
For standard track power, Aristo Revolution, etc. All types: $119.95*

Automatic Back-N-Forth
from $39.95 to $139.95

* $12 - $14 minimum s/h/l, PA res + 6% sales tax

DALLEE ELECTRONICS, Inc.
Est. 1976
246 W. Main St., Dept. GRW
Leola, PA 17540
(717) 661-7041
www.dallee.com
Made in U.S.A.

Catalog $12.75, MRR Wiring Guide $26 both $38 or free from our web site!
U.S. funds only - no stamps! (outside US req. extra postage)

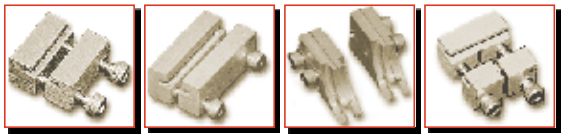
East Gary Car Company

EAST GARY CAR CO
3828 St. Joseph Ct.
Dept. G.
Lake Station, IN 46405

IMPROVED TRUCKS

F100	1:20.3 D&RG archbar trucks with steel wheels	pr./$29.95
G-504A	1:24 D&RG archbar trucks with steel wheels	pr./$29.95
G-508	NBW's 60	pr./$3.95

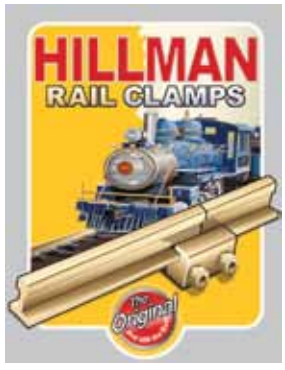
SASE for list
All parts are cast in white metal.
$6.00 minimum postage & handling
Indiana residents add sales tax
"Prices Subject to Change"
Andrew D. Sunderland



- ✔ Standard RailClamps
- ✔ Insulated RailClamps
- ✔ Power RailClamps
- ✔ Expansion Track
- ✔ Bridge RailClamps
- ✔ Nickel-Plated RailClamps
- ✔ XLong RailClamps
- ✔ Wheel Stops & more...

Made in USA

HILLMAN RAIL CLAMPS



www.hillmanrailclamps.com
• 843-407-6659 •

LIGHT RAIL PRODUCTS
1:24 scale kits & parts, for G-Scale streetcars.

LRP#019
Trolley Snow Sweeper Pedestal Kit
Cast Brass
$33.00 plus shipping
Now Available

phone:
650-355-4815
noon – 7:00 pm PST

Call for Catalog.
Or visit on the web.
info.lrp@comcast.net

www.lightrailproducts.com

Fully Assembled
Mahogany & Brass
1:20 Scale
Bridges

www.LONESTARBRIDGE.com
410 Lillard #206 Arlington, TX 76012

1-888-548-5656
email: mark@lonestarbridge.com

RIO GRANDE SOUTHERN RAILROAD HOBBIES

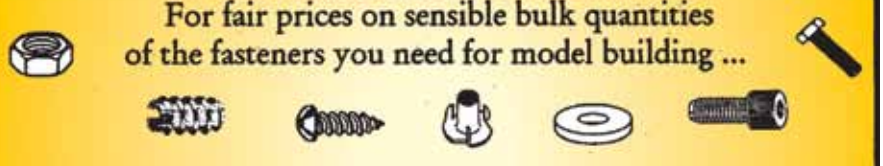
SPECIALIZING IN NARROW GAUGE FN3 AND STANDARD GAUGE 1
CUSTOM SOUND, BATTERY, AND
RC INSTALLATIONS ARE AVAILABLE.

VISIT US AT WWW.RGSRRHOBBIES.COM

PHONE 970-626-3733 • 6997 COUNTY ROAD 5 • RIDGWAY, CO 81432-9732

TIRED OF PAYING $1.29 FOR 6 SCREWS?

For fair prices on sensible bulk quantities
of the fasteners you need for model building ...



Micro Fasteners 24 Cokesbury Rd., Ste. 2, Lebanon NJ 08833 Call: 1-800-892-6917
email: info@microfasteners.com http://microfasteners.com Fax: 908-236-8721

...CALL, EMAIL, FAX OR WRITE FOR OUR
FREE MICRO FASTENERS CATALOG

Valley Train Station

3811-B Schaefer Ave.
Chino, CA 91710
Phone: 909-902-5350
Fax: 909-902-5352
Hrs. 10-6 Tues - Sat.

G Scale only!
Slot Cars too!

Build a small and funky caboose from a kit

If you are a fan of the small and funky, you'll like Ozark Miniatures' Clear Creek series of 10' (or 12'+ in the case of the caboose) car kits. These are freelance designs but many short lines and industrial railroads crafted similar cars.

The kit contains laser-cut wood parts, scale stripwood, white-metal castings, plastic window glass, metal wheels, and colored jewels for marker lights. The instructions call for two bar clamps, four spring clamps, hobby knife, pin vise, a couple of small drill bits, rubber bands, super glue, and wood glue. In practice, I used more than four spring clamps to hold some items, like the main roof, while waiting for the glue to dry. I also used a small razor saw to trim some of the scale lumber to length, and a foam sanding block or a small flat file to sand some components to size.

The instructions come in the form of a single sheet folded in half, with 21 steps, a page and a half of small (2" x 1½") color pictures, and a diagram for the identification of the wood parts. A separate, small sheet of instructions covers the assembly of the pedestal/journal castings.

Instructions suggest cleaning the flashing from the metal castings, then rinsing them to remove any residue from the molding process. I have found better success by scrubbing the castings with a spare toothbrush and mild dish detergent. I used a blackening agent on many of the castings, and the extra scrubbing ensures that the blackener is able to react with the metal. The instructions suggest sanding the edges of the laser-cut wood components to enable a better glue bond.

Instructions are terse but offer a logical order for construction. The accompanying color photos help the builder to understand some of the construction steps. However, in other cases, the photographs are reproduced at too low a resolution for you to see exactly what is intended. For example, the side and end walls of the caboose are joined at the corner by a square piece of stripwood. The text just says to glue part "B" to part "L." In the related photo, it is difficult to see how part "L" is supposed to fit in relationship to part "B." As a rule of thumb, it is useful to dry fit as many of the parts as possible before gluing anything. In this case, assembly became obvious after I used a rubber band to hold all of the wall components around the base.

The other area of issue was in fitting the caboose steps. I found it necessary to sand the same corner post (mentioned above) in order to make space for the step casting to fit between the end beam and the wall. The step castings also have a notch at the top, where it appears that they could be inset slightly under the floor of the end platform. This is not mentioned in the instructions and, if you intend to accommodate this feature, you would need to make the adjustment in the second step of the instructions, where the beams are glued to the floor.

Standard cautions apply to assembling the pedestal/journal-box castings. Care must be taken to keep all super glue out of the area in which the journal box slides. Keep the glue to a minimum. I used two spring clamps to hold each pedestal/journal box until the glue had set to full strength. Likewise, when putting the plastic "glass" into the window openings, be careful to avoid touching the plastic if you have even a hint of glue on your finger tips. (I have a smudge in one of the cupola

Vital statistics

1:20.3 scale, gauge 1, two-axle bobber caboose
Ozark Miniatures
3461 S 5225 W
Cedar City UT 84720
Price: $130.80
Website: *www.ozarkminiatures.com*

Wood-and-metal kit for constructing a freelance bobber caboose; laser-cut wooden parts; white-metal castings; plastic window panes; Sierra Valley wheels; link-and-pin couplers. Dimensions: length, 8½" over couplers; width, 4½"; height, 8½" to top of smokejack. In 1:20.3 scale, this works out to around 14' x 7'6" x 14', respectively

Pros and cons

Pros: Good-looking model of a freelance, two-axle bobber caboose; suitable for the rear of a train of short ore cars or logging flats
Cons: Minimal instructions; accompanying photographs are small and, in some cases, details are difficult to see; no underbody detail; some trimming of parts required to make things fit—not mentioned in instructions

windows because I was not careful enough.) Using tweezers instead of "fat" fingers might also help in fitting the "glass" into the window castings.

The kit comes with marker lights, including red and green plastic jewels for the lenses. I chose not to use them. After looking at various pictures of bobber cabooses, I felt that the markers were not necessary for the look I wanted. I also chose to leave off the handrails that mount to the walls because I could not easily drill the mounting holes after the end railings were glued in place.

I found this to be an enjoyable kit to assemble. I spread the assembly over several evenings to ensure plenty of time for the glue to dry. I painted the components with my favorite hardware-store spray paint. The final caboose blends well with some of my smaller live-steam engines and the short wheelbase allows it to look at home on tight curves.

—G. Erhart

Need Sounds? 40 Choices, Complete Systems

RAM 63 Fog Horn
RAM 72 Steam Whistle
RAM 73 Diesel Horns
RAM 74 Diesel Bell
RAM 75 Diesel Engine
RAM 77 Steam Calliope
RAM 80 Old Steam Whistle
RAM 88 Conducter Call
RAM 89 Cattle
RAM 103 Birds
RAM 104 City Traffic
RAM 105 Construction Site
RAM 106 Dockside
RAM 107 Machinery
RAM 108 Garage Work
RAM 114 Crossing Bell
RAM 139 Bell, Irregular
RAM 140 Bell, Regular
RAM 143 Telegraph
RAM 145 Track Click
RAM 146 Honky Tonk
RAM 147 Blacksmith
RAM 148 Saw Mill
RAM 149 Summer Nite
RAM 150 Thunder
RAM 151 Horses
RAM 152 Pigs
RAM 153 Sheep
RAM 154 Trolley Bell
RAM 155 Trolley Horn
RAM 156 Crickets
RAM 157 Hobo Joe
RAM 162 Haunting
RAM 163 Barn Yard
RAM 180 Rail Car
RAM 181 A Hooga

* Digital Sounds $39.95 each *
* Onboard or Trackside *

RAM 51 Steam Engine HO
RAM 52 Steam Engine O
RAM 53 Steam Engine G

* Speed Sensing $49.95 each *

• Assembled in the USA •

See your hobby retailer or send a #10 S.A.S.E. to
229 E. ROLLINS RD., ROUND LAKE BEACH, IL 60073 USA
(847) 740-8726 FAX: (847) 740-8727
WWW.RAMRCandRAMTrack.com

LARRY G SCALE
Miniatures for Modeling!
OFFERING A WIDE ARRAY OF IN-STOCK ACCESSORY ITEMS!

SEE US ON THE WEB FOR YOUR MINIATURE NEEDS!

- Pallets, People and Produce
- Garage and Shop Items
- Furniture and Freight
- Industrial and Construction Equipment
- All kinds of miscellaneous Detail Items. Hand painted and ready to go!

For catalog send $4.00 to:
LGS Catalog
41 Berdan Street
Rochelle Park, NJ 07662

Gift Certificates now available.

WE WORK FOR YOU!

Email: larrygscale@aol.com • Telephone:(201) 926-2241 • Internet: http://www.larrygscale.com

LOCOLINC

THE COMPLETE FAMILY OF RADIO CONTROL PRODUCTS

CONVENIENCE
track, battery or track power with battery backup

LOCOMOTIVE RECEIVERS
live steam
electrical locomotives
one to 6 amps

ACCESSORY RECEIVERS
turnouts
layout accessories

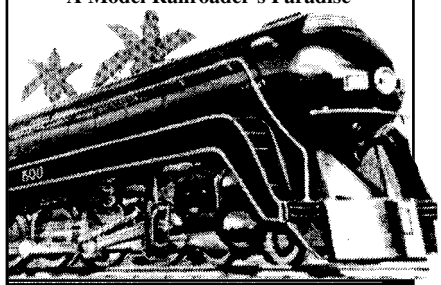
SOUNDLINC
Steam and diesel modules

BATTERY CHARGERS

ADDRESSABLE POWER SUPPLIES

Keithco
Keithco, Inc.
PO Box 1806
Lake Oswego, OR 97035
Phone: 503 • 635-7604
www.locolinc.com

FLORIDA'S LARGEST TRAIN STORE
A Model Railroader's Paradise



H&R TRAINS

STAINLESS STEEL TRACK
CODE 332
Low Maintenance!

"Rosecrans" Trestle Bridge

Bridges Made by H&R Trains
CUSTOM ALUMINUM BRIDGES AND MORE…

Visit us online at: www.hrtrains.com
"Better yet, visit us in the Tampa Bay Area"
6901 U.S. Highway 19 North
Pinellas Park, FL 33781
Ph: (727) 526-4682 • Fax: (727) 526-3439

Coal haulers from south-central Pennsylvania

In 1912, the East Broad Top Railroad needed to replace its aging fleet of wooden hopper cars. They turned to the Pressed Steel Car Co. to design and build them a modern steel hopper, similar to those running on standard-gauge railroads at the time. After PSC Co. built 40 cars for the railroad, working out all the design kinks in the process, the East Broad Top thanked them, then proceeded to copy PSC's design, building over 250 hoppers on their own. (The EBT had a long history of "adapting" commercial carbuilders' designs.)

The car the EBT shops turned out was a three-bay steel hopper, around 28' long and a bit under 8' wide. It had a capacity, as built, of 35 tons of coal. In the 1940s, the railroad added 12" extensions onto the sides of a number of these hoppers (not modeled on the Accucraft cars) to increase their capacity to 40 tons. These cars were arguably almost single-handedly responsible for the success of the EBT into the 1950s, when the railroad finally shut down freight operations. Many of these cars still exist on the EBT today. Most are rusting away in the yards at Mt. Union and Rockhill Furnace but a few have been restored and see service on photo specials every year.

A few dozen of the hoppers were sold to other railroads over the years. The White Pass & Yukon bought a small fleet of them, as did the Durango & Silverton and, most recently, the Cumbres & Toltec. Many of these have been restored and are in maintenance-of-way service. (Accucraft offers these road names, in addition to the EBT and an undecorated version.) Some have also made their way to California, Indiana, West Virginia, and even Hawaii.

I've been around these hoppers since I was a kid. I've climbed up them, in them, under them, and, in some cases, through them. Naturally, I'm excited about a model of them but, at the same time, it makes me more acutely aware of discrepancies between the model and the prototype.

Generally speaking, Accucraft's model of the EBT three-bay hopper is very good. Its overall dimensions are mostly spot on, or within one or two inches of the prototype. Lettering is crisp and fairly accurate for all of the road names offered. The working hopper-door mechanisms are a nice touch. Trucks are accurate, smooth rolling, and the springs are soft enough that the weight of the car compresses them so that the trucks roll smoothly over uneven track. The wheels—which scale to 24.5", as opposed to 24" on the prototype—have a back-to-back spacing of 1.575", which matches NMRA and G1MRA standards. The car has a stated minimum radius of 4'.

Couplers are Accucraft's standard 1:20.3 knuckles, which are compatible with all their other equipment. The EBT used a three-quarter-size coupler, which is smaller than Accucraft's 1:20.3 coupler. If you want to change to a prototypically sized coupler, Accucraft's 1:32-scale coupler is a dead ringer for the three-quarter-size unit in 1:20.3, and it attaches easily. Accucraft also conveniently provided mounting holes for a "standard" Kadee #830 draft-gear box. Note that, while the EBT used a three-quarter-size coupler, the cars that were sold to other railroads were refitted with standard-sized couplers.

On the surface, Accucraft's three-bay hopper does a great job of capturing the look, feel, and size of the prototype. If all you've ever seen of these cars are photographs, they're pretty much spot on. There's nothing on this car that raises any

Vital statistics

1:20.3 scale, gauge-1 hopper
Accucraft Trains
33268 Central Ave.
Union City CA 94587
Price: $149.00
Website: *www.accucraft.com*

1:20.3 scale, gauge-1 model of a 3' gauge, East Broad Top, three-bay steel hopper; plastic body; die-cast frame; die-cast trucks. Dimensions: height, 5¾" over brakewheel; width, 4¾"; length, 19" over knuckles. In 1:20.3 scale, this works out to 28'2" x 7'7" x 8'9", respectively

Pros and cons

Pros: Overall size and most details match prototype well; weight of car compresses truck springs sufficiently to equalize them for uneven track; working hopper doors

Cons: Air brake, hopper-door mechanisms, and cross braces do not match prototype; car data and number are the wrong font

kind of flag in terms of being glaringly "wrong," either from a prototypical or operational standpoint. If your railroad is in need of a modern steel hopper for hauling whatever you'd like to haul in a hopper car, this car is sure to please.

Therein lies my conundrum. Because I am so intimately familiar with the prototype, I know where almost every rivet, latch, pipe, and lever is supposed to be. Accucraft's hopper car, while of high-enough quality that anyone would be perfectly happy to run it on their railroad, gets some stuff curiously wrong when compared to the prototype. Do I, as a reviewer, stop with "good enough for the general public" because I may not be as familiar with other prototypes of models I've reviewed over the years as I am this one? Or do I go ahead and mention the discrepancies in the context of Accucraft's reputation as builders of "museum quality" models, and let the reader decide if the departures from the prototype are that big a deal?

A few things on this car have me scratching my head. First, there's the brake detail and hopper-door mechanisms. They don't match the prototype. Brake plumbing and placement of the cylinders are completely wrong. The hopper-door mechanisms on the model are actually more complex than those on the prototype. What really caught my attention, however, is how much they resemble the brake detail and hopper-door mechanisms on Bachmann's two-bay EBT hopper. Did Accucraft use the Bachmann car as a blueprint for those details instead of the looking at the EBT prototype? That's just speculation on my part but, given the ample photos, drawings, existing prototypes, and other reference material that exists for these cars, I'm at a loss to explain the coincidence any other way.

The model differs from the prototype in some other small ways. The braces running across the middle of the hopper should be lengths of rail, not "C" channels. There's no rivet or bracing detail on the undersides of the slope sheets—they're just flat. I would like to have seen some rivet detail there. There is some rivet detail on the slope sheets on the inside of the hopper but none on the hopper bays

or side walls.

The lettering is not quite accurate; it's the wrong font. It's a minor thing, and only calibrated eyeballs would know the difference. (Full disclosure—I provided Accucraft with the artwork they used for the famous "Acorn" herald. In that same file was the artwork for the car data, so I don't know why they didn't use that to get all the lettering correct.)

These differences don't really detract from the overall effect of the model. When I put the hoppers in a train, I have enough trouble telling which end the brake cylinders are on, let alone how the plumbing is run (much as on the prototype, really). I'm going to enjoy every minute of watching a train of these cars run around the railroad. A string of 15 of these cars would look absolutely splendid behind an East Broad Top Mikado. Still, the purist in me can't help but wish that Accucraft had spent a little more time hitting the books on this one, to do the little things as well as they did the overall picture. **—K. Strong**

Online Extra

Subscribers: Read reviews of other products from Accucraft. Go to www.GardenRailways.com and click on the "Product reviews" tab under "Product & hobby news."

NATIONAL GARDEN RAILWAY CONVENTION
CHICAGO
2012

28th National Garden Railway Convention
Chicago, Illinois
August 15-19, 2012

Pheasant Run Resort & Spa
St. Charles, Illinois 60174

Activities Include:

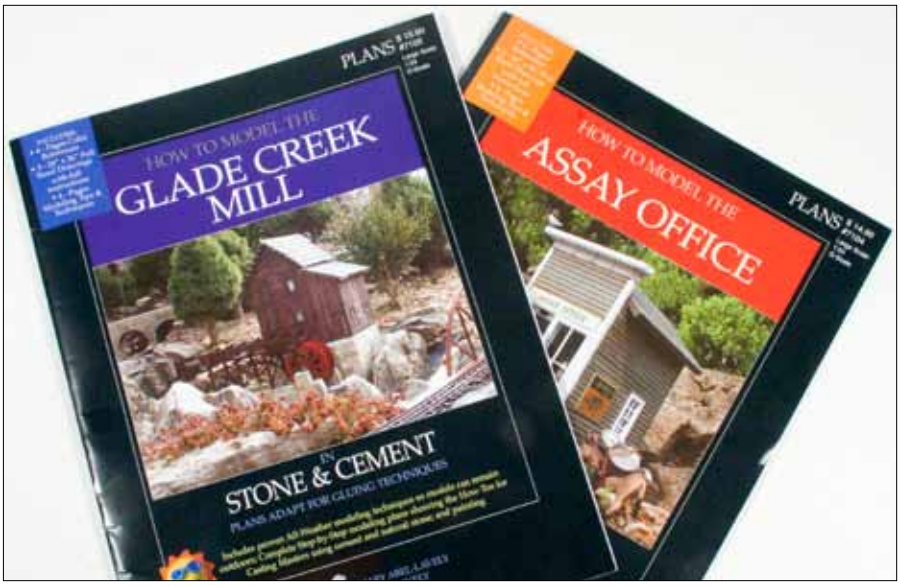
- Four Days of Diverse Layout Tours
- *Pre-Tour to* Chicago Botanic Garden & G-Scale Jr. Railway Tour
- Ice Cream Social at Pheasant Run
- Illinois Railway Museum & BBQ
- Theme Dinner at Pheasant Run
- Convention Banquet Dinner
- Model Contests
- Car Loads of Exhibitors
- Two Large Display Layouts in Convention Hall
- Clinics on Trains, Gardens & Ponds

Hotel reservations must be made directly with Pheasant Run Resort & Spa at 1-800-474-3272

Be sure to mention you are with the Garden Railway Convention to receive a special rate.

Public Invited! -
Saturday, August 18th - Exhibition Hall
Open from 9:00 a.m. to 5:30 p.m.
Sunday, August 19th - Exhibition Hall
Open from 9:00 a.m. to 3:00 p.m.

For more information check out
www.2012ngrc.com
or call Mary Lou Lienau at
630-985-2057



Get ready to build

Stoneworks has developed an unusual method of building structures for garden railways out of concrete and, often, real stone. These can resemble wooden, concrete, or stone buildings when finished, and the final product is more or less impervious to weather in any climate.

The two plan sets reviewed here utilize Stoneworks' methods to create an assay office or a water mill. Each project is supplied with an eight-page booklet. Inside each booklet is one or more color photos of the finished model, along with photos of similar full-size structures, some historical, for reference. The inner four pages, in black and white, are Stoneworks' "Stone & Cement Modeling Tips." These provide rudimentary information about the casting process as well as working with the styrene windows and doors that the company also offers. Included is a glossary of terms used in the projects, many having to do with cement, tools used in modeling it, and other materials.

Full-size plan sheets are included in each project—two for the assay office and three for the mill. In addition to the plans themselves, these sheets include illustrated, step-by-step instructions on how to construct the building.

The actual plans are, in fact, just outlines of the walls, showing window and door placement. They are not the drawings of the finished building that one might expect. You use these plans to construct formwork out of insulation-foam strips, following the instructions.

Of our two review samples, the assay office is the smaller and simpler. It represents a wooden, clapboard structure with a false front and a stone base or foundation. The plans call for the use of Stoneworks' styrene doors and windows. You could probably use those by other makers or scratchbuild your own, but you'd have to adjust the window size on the plans.

The exterior finish of the building, in this case the clapboards, is attained through the use of molded styrene sheets, which Stoneworks (and others) also sells. The sheets are built into your molds. They are neither cut nor damaged by the process and can be reused. Hardware cloth is cast into the walls for strength and the recommended cement is Quikrete Vinyl Concrete Patcher. Foam blocks are set into the molds to create cavities for doors and windows, which are later placed in the structure after the cement has cured.

The mill is larger and more complicated. Like the assay office, its plan sheets take you through the process step by step. The mill sits on a large, stone foundation, made up of individual stones that are set into the mold before the cement backing is poured. Again, a styrene sheet provides the surface finish for the main structure. Stoneworks can provide all of the doors and windows for this structure as well, and they even offer a styrene water wheel and sluice so that the finished structure can be tied into your water feature.

While the instructions are complete and clearly written, they move pretty fast. If you have had experience with this type of construction in the past, you should have no difficulty with these buildings. However, if this technique and these materials are new to you, I strongly recommend Stoneworks' book, *How to Model in Stone and Cement* (52 pages, 400+ pictures, $19.95), to fully familiarize yourself with this interesting, versatile, and durable modeling process.

The finished structures, when properly painted, are virtually indistinguishable from whatever material they are intended to represent. Add to that the fact that you actually made the building yourself and that it can be expected to last many years outdoors, and you've got a winner. **—M. Horovitz**

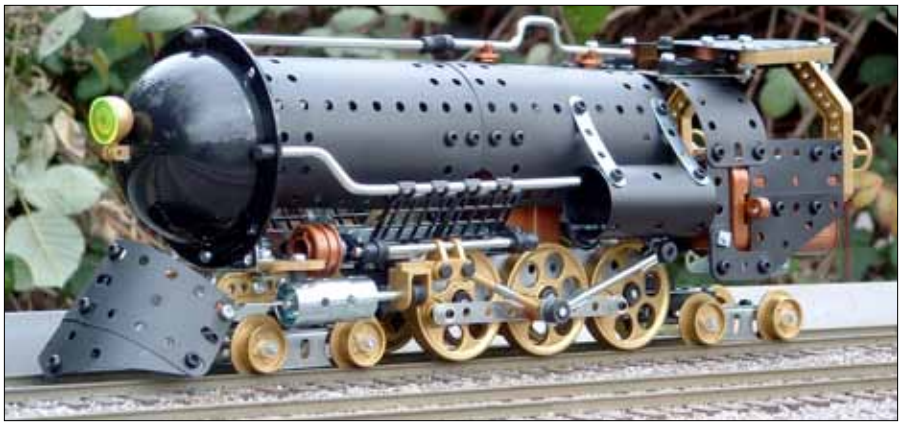
Vital statistics

1:24-scale Assay Office—plans and instructions
1:24-scale Glade Creek Mill—plans and instructions
Stoneworks
23351 Maple Lane
Shell Knob MO 65747
Prices: Assay Office (#7104), $14.90; Glade Creek Mill (#7105), $15.90 + s&h
Website: *www.RRStoneworks.com*

Plans and instruction sets for making cast-concrete structures in 1:24 scale; assay office includes two 24 x 36" plan sheets, printed one side; eight page, 8½ x 11" booklet; card with fraction/decimal/metric conversion table and 3" ruler; Glade Creek Mill includes the same, with the addition of a third plan sheet

Pros and cons

Pros: Well presented projects; step-by-step construction; weatherproof finished product; lots of pictures
Cons: Construction process a little sketchy in places—see text



An Erector-set locomotive

I saw this set at Toys-R-Us and it really caught my eye. My six-year-old grandson Max and I were there looking for something interesting to build together. Max is a Lego Master, skilled beyond his years. However, he had never worked with an Erector set. I on the other hand, growing up in the 50s, was raised on Erector sets. It and my American Flyer S-scale trains were my favorite things for many years. I decided it would be a good meeting of the minds to see how the Erector Set Master (me) and Lego Master (Max) would do, teaming up our construction-set-building skills with a new "this isn't your grandfather's Erector set" Erector set.

Vital statistics

Large scale (no scale specified), gauge 1, locomotive construction kit
Meccano
363 Avenue de Saint Exupery
F-62100 Calais
France
Price: $65.99 at Toys-R-Us
Website: *www.meccano.com*

Erector Special Edition #83-0506E, non-scale-specific construction set for a couple of different 1-gauge locomotives (as well as a rocket, submarine, or four other vehicles); all necessary parts with instruction booklet included (except 4 AA batteries); 530 parts; recommended age 8 to 15 years. Dimensions: overall length, typically 15"; width, 4½"; height 6½"

Erector brand is now owned by Meccano, a French company, but they have retained the essence of the original sets while adding some new pieces and specialty shapes. The set we decided to build was the electric, battery-powered steam engine (of course). The overall look of the model is reminiscent of Jules Verne. Amazingly, the model is designed for gauge-1 track, so it seemed the perfect project. This is an excellent father/child (or grandfather/grandchild project—girls not excluded here).

There are a lot of parts. We started by laying them out, sorting them by type (different screw lengths, axle lengths, etc.), and using the compartments in the case to group them for quick identification.

For the first couple of steps (there were 27, all told), Max and I just read the directions, looked for the parts, and assembled them. Then we tried a more efficient approach. I had Max read the next numbered direction and gather the parts together in a "next up" bin, while I assembled the parts in the current step. This was good exercise for him in locating and identifying parts by shape, description and color. We did that for a few steps, then switched places once he had the hang of assembly from watching me. In this way he got experience in both learning the different parts and assembly techniques. If I got tired he took over and vice versa.

This model took a total of 11 hours to assemble, over three days. The time went quickly and I was impressed with Max's ability to simply move ahead in a relaxed way from step to step. We spent a couple of hours assembling the model on the first day before he had to go to bed. He was so excited about the project that, on day two, when he woke up, he immediately went to the kitchen table and sat there all day in his pajamas, working on the model without a break.

This process was a brain builder. I can't overstate the educational value of building one of these Erector sets. Because Erector sets use nuts and bolts as fasteners instead of simply pushing parts together (as in Legos), the assembly process is more complicated and time consuming. However, the benefits are huge, due to the added complexity of the additional parts and the process of sorting and thinking about their use. Three-dimensional spatial perception is exercised and developed through the necessity of visualizing the sub-assemblies from different angles and figuring out how they go together. It was also a wonderful bonding experience for us, working together.

The only things in the set that need improving if you're really going to run the model for extended periods are the axle end fasteners. Overall performance is a bit questionable, due primarily to the plastic drive wheels and non-locking friction fasteners for the axle ends, which tend to slip loose. I think the model has some potential if one wanted to experiment with substituting more robust parts. I'd recommend replacing the fasteners with set-screw collars, available at hardware stores. That could be a learning experience on its own with your junior building partner.

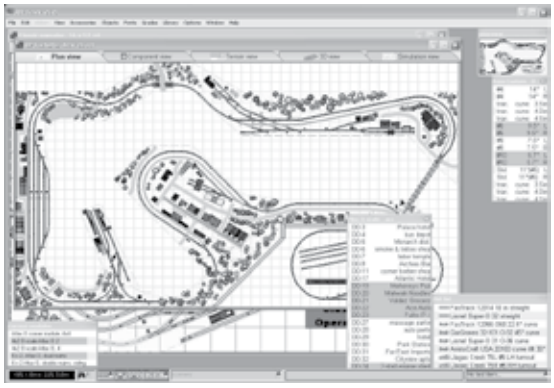
On the whole, I highly recommend this product. Max's comments: "Very, very, very awesome set," "[It was] fun to build," and "Awesome model!" **—G. Raymond**

Pros and cons

Pros: Overall appealing impression; cool retro look; great learning experience for adult-and-young-child activity
Cons: Wheelsets and linkage system not robust; some parts modification or substitution not included in the kit necessary for extended track operation; a few more extra nuts and bolts would be helpful

2012: The year for your Garden Railway!
Have a Problem? Bet we can Solve it!
Ralph Williams and Eric Peterson
www.TrainsandTrees.com
Lancaster, MA 508-962-0449 Mendon, MA
Serving New England for over 40 years

RR-Track
for Windows™
New v5.0!
Graphical Sectional Track Layout Software
"track layout software that doesn't require CAD expertise"



-*Fully graphical,* point and click track laying.
-*Multiple open layouts* - copy/paste between layouts.
-*Multiple drawing layers,* up to 128.
-*2D Plan View* for layout design.
-*Component View* for layout inventory.
-*Terrain View* for creating benchwork and terrain.
-*3D View* for realistic layout visualization.
-*Simulation View* running trains and checking layout operation.
-*Modular Layout* support, turn small layout designs into component modules.
-*20 levels of Undo* to back track from mistakes.
-*New tab interface,* minimizes clutter.
---and much more---
Compatible with Windows XP, Windows Vista (32/64), and Windows 7 (32/64)
www.rrtrack.com
R & S Enterprises
PO Box 643
Jonestown, PA 17038
717-865-3444

Book review

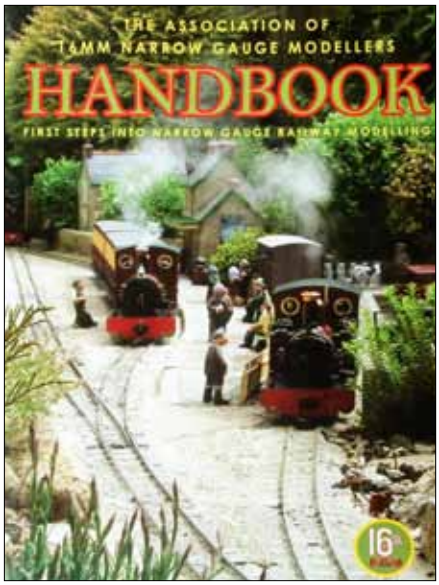
The Association of 16mm Narrow Gauge Modellers Handbook: First Steps into Narrow Gauge Railway Modelling
Edited by Rob Bennett
Association of 16mm Narrow Gauge Modellers
c/o Alan Regan (Membership Secretary)
45 Hollow Wood
Olney, Bucks. MK46 5LZ, UK
Softbound, 8¼" x 11⅝", 64 pages, glossy paper, full-color reproduction
Price: See text
Website: *www.16mm.org.uk*

The Association of 16mm Narrow Gauge Modellers is the oldest garden-railway-oriented organization in the UK specifically dedicated to narrow-gauge modeling. Members receive a fine, full-color magazine four times a year, as well as other benefits, one of those being the book reviewed here. This volume is provided free of charge to members but is otherwise unavailable to the general public. I have been asked to review the book in *GR* and, after reading it, agreed to do so, as it is very good.

This handbook is intended to be an introduction to the hobby of narrow-gauge garden railroading as practiced in Great Britain, home of some of the most beautiful garden railways in the world. It is edited (and partly written) by Rob Bennett, who has many years experience in the hobby.

The book begins with an introduction to the Association. This is followed by a discussion of British narrow-gauge railways, where the standard (I use the term loosely) is 2' gauge, as opposed to 3' gauge in the US. This is succeeded by a discussion of 16mm-scale modeling standards, wheels and couplers, and considerations when planning your railway.

After planning, we get to the nuts and bolts of constructing a railway in the garden. The advice presented in this book is based on years of experience and, while the slant is decidedly British, the informa-



tion is universally applicable and is well presented. The basics of live-steam operation are then discussed in some depth, as are those of battery-powered locomotives and radio control.

The pros and cons of buying rolling stock off the shelf, as opposed to kit building or scratchbuilding, are examined, and there is an article on how to assemble a cast-resin coach. Weathering is gone into, including photos of old prototype equipment. A section on structures covers materials, weatherproofing, and more.

Near the end of the book is an excellent introduction to railway gardening, covering basic plant groups and their uses on the railway. The book winds up with a mention of larger garden scales (⅞" and 1") and a look at security and protecting your railway from unwelcome visitors.

The book is beautifully illustrated throughout, with color photos of garden railways, trains, plants, and more. My only complaint is that, in many of the photos, neither the railways nor the owners were identified, nor were the people who appeared in many of the pictures.

Aside from that niggle, I felt that this book provides an excellent introduction to our hobby as practiced in the UK. The obvious downside is that you must join the organization to receive it (US membership is £31 per year, or around $49). However, the upside is that you'll also receive four magazines per year, equal in quality to this book. **—M.H.**

On www.GardenRailways.com

This issue's drawings

Drawings for a 1:29-scale grain elevator originally published in the August 1965 issue of *Model Railroader*, are available to registered users of our website. Plans will be available **free** from December 24, 2011-March 13, 2012. After that time, the plan will be available to subscribers only. Click on "Full-size drawings" under "How to."

Simple weathering techniques

For subscribers: Download a bonus article on simple weathering techniques for rolling stock, originally published in the December 2006 issue. Click on "Construction & landscaping" under "How to."

Expanded article

For registered users: Read an expanded version of "Trains, grafitti, and fine art," which includes extra photographs. Click on "Hobby news" under "News & products."

New user videos

New user videos are added weekly to our website! Click on "User videos" under "How to."

Online forums

Topics include all aspects of the hobby. Interact with fellow members of the garden-railway community.

FREE e-mail newsletters

Sign up online and you'll receive the latest product announcements and hobby news twice per month.

Find a club

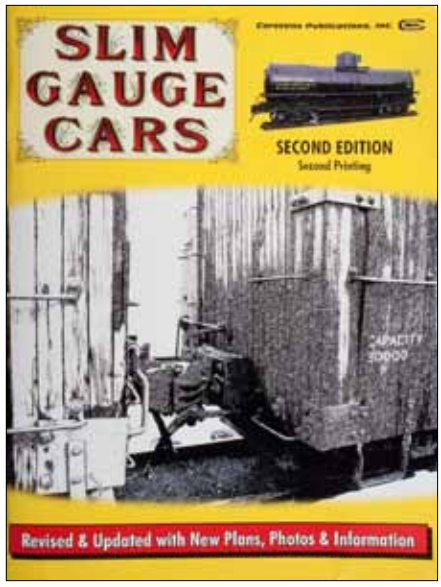
Find a directory of garden-railway societies at *www.gardentrains.org*. Those without Internet access may call our editorial office at 262-796-8776 for assistance.

Just for Kids article collections now for sale

We are now offering collections of "Just for Kids" projects from the early 1990s. Each project is presented in an easy-to-follow format, and all projects include photos and an illustration. Go to www. GardenRailways.com and click on "Downloads" under "Shop."

Book review

Slim Gauge Cars
Edited by Chris Lane
Carstens Publications
108 Phil Hardin Road
Newton NJ 07860
Softbound, 8½ x 10¾", 132 pages, glossy paper, B&W and color photos
Price: $19.95
Website:
www.carstens-publications.com



This interesting and useful volume is a revised and updated second edition of a book first published in 1991. It contains photographs, historical information, and scale drawings of over 60 pieces of rolling stock from more than 15 US narrow-gauge railroads, both two-foot and three-foot, gleaned from the pages of *Railroad Model Craftsman* magazine.

The book opens with a section, including color photographs, of places you can go in the US to see preserved narrow-gauge equipment. Then follows the meat of the book—the plans and photos. These range from the common (Rio Grande stock car) to the obscure (Cairo & Kanawha boxcar), with much in between. Freight cars are presented first, followed by MOW equipment (including an excellent section on D&RGW rotary snowplows), cabooses, and passenger cars.

Most sections include some historical information about each vehicle. The drawings, which are done in a variety of scales, from ¼"(0 scale) to 3.5mm = 1'0" (HO scale), are excellent. Many entries include photographs of the details of the rolling stock, increasing the book's value for model builders.

The softbound, saddle-stitched book is nicely produced on heavy, glossy paper. Photo quality is generally excellent and the text accompanying the various pieces of rolling stock is well written and informative. While no book of this type can be 100% comprehensive, this one offers a broad and interesting cross-section of American narrow-gauge rolling stock. It's nice to see a book of this nature that is not overburdened by the Rio Grande. If you are interested in US narrow gauge, either as a scholar or a modeler, *Slim Gauge Cars* will be a fine addition to your library. **—M.H.**

STATEMENT OF OWNERSHIP, MANAGEMENT, AND CIRCULATION
(Required by 39 U.S.C. 3685)

1. Publication Title: GARDEN RAILWAYS
2. Publication No.: 713-710
3. Filing Date: 10/01/11
4. Issue Frequency: Bimonthly
5. Number of Issues Published Annually: 6
6. Annual Subscription Price: $29.95
7. Complete Mailing Address of Known Office of Publication: 21027 Crossroads Circle, Waukesha WI 53186, Waukesha County
8. Complete Mailing Address of the Headquarters of General Business Offices of the Publisher: 21027 Crossroads Circle, Waukesha WI 53186
9. Full Names and Complete Mailing Address of Publisher, Editor, and Managing Editor: Publisher, Terry Thompson, 21027 Crossroads Circle, Waukesha WI 53186; Editor, Marc Horovitz, 21027 Crossroads Circle, Waukesha,WI 53186, Managing Editor, N/A, 21027 Crossroads Circle, Waukesha WI 53186.
10. Owner: Kalmbach Publishing Co., 21027 Crossroads Circle, P.O. Box 1612, Waukesha, WI 53187-1612; stockholders owning or holding one per cent (1%) or more of total amount of stock are: Gerald & Patricia Boettcher Living Trust, 8041 Warren Ave., Wauwatosa WI 53213; Alexander H. Darragh, 1200 W. 3rd St., Waterloo IA 50701; Melanie Duval, 8642 Bronson Dr., Granite Bay Bay CA 95746-9313; Harold Edmonson, 6021 N. Marmora Ave., Chicago IL 60646-3903; Laura & Gregory Felzer Jt. Tenants, 220 E. Michigan St., Ste. 10, Milwaukee WI 53202; Susan E. Fisher Revocable Trust, 5751 N. Kolb Rd., Tucson AZ 85750; George A. Gloff, c/o Ted & Lois Stuart, 1873 Frays Mill Rd., Ruckersville VA 22968; Bruce H. Grunden, 14102 Seagler Springs Lane, Houston TX 77044; Linda H. Hanson, 363G Bateman Circle S., Barrington IL 60010; George F. Hirschmann Trust, 363G Bateman Circle S., Barrington IL 60010; James D. Ingles & Carol L. Ingles, P.O. Box 2161, Waukesha WI 53187; Charles & Lois Kalmbach, 7435 N. Braeburn Ln., Glendale WI 53209; Kalmbach Profit Sharing/401K Savings Plan & Trust, P.O. Box 1612, Waukesha WI 53187-1612; James & Elizabeth King, 3874 Quail Ridge Dr., Boynton Beach FL 33436; Mahnke Family Limited Partnership/Trust, 1979 Discovery Village Ln., Gold River CA 95670-7279; George Steven Mahnke, 4708 Olive Oak Way, Carmichael CA 95608; Mundschau Revocable Trusts, N24 W30420 Crystal Springs Dr., Pewaukee WI 53072-4275; Daniel and Mary Murphy, 705 Heathery Ln., Naples FL 34108; Robclif, Inc., 865 Busse Hwy., Park Ridge IL 60068; David M. Thornburgh Trust, 420 W. San Marino Dr., Miami Beach FL 33139-1136.
11. Known bondholders, mortgagees, and other security holders owning or holding 1 percent or more of total amount of bonds, mortgages or other securities: N/A.
12. Tax status: For completion by nonprofit organizations authorized to mail at special rates (Section 423.12 DMM only): N/A
13 Publication Name: GARDEN RAILWAYS
14. Issue Date for Circulation Data Below: August 2011

15. Extent and Nature of Circulation:	Average No. Copies Each Issue During Preceding 12 Months	Actual No. Copies of Single Issue Published Nearest to Filing Date
a. Total number of copies (net press run)	34,662	33,357
b. Paid (by mail and outside the mail)		
1. Mailed outside-county paid subscriptions	18,257	17,612
2. Mailed in-county paid subscriptions	0	0
3. Paid distribution outside the mails, including sales through dealers and carriers, street vendors, and other paid distribution outside USPS	5,347	4,834
4. Paid distribution by other classes of mail through the USPS	0	0
c. Total paid distribution (Sum of 15b(1), (2), (3), and (4))	23,604	22,246
d. Free or nominal rate distribution (by mail and outside the mail)		
1. Free of nominal rate outside-county copies	0	0
2. Free of nominal rate in-county copies	0	0
3. Free or nominal rate copies mailed at other classes through the USPS	110	101
4. Free or nominal rate distribution outside the mail	50	0
e. Total free or nominal rate distribution (Sum of 15d (1), (2), (3) and (4))	160	101
f. Total distribution (Sum of 15c and 15e)	23,764	22,547
g. Copies not distributed:	10,898	10,810
h. Total (Sum of 15f and 15g)	34,662	33,357
i. Percent paid (15c divided by 15f times 100)	99.33%	99.55%

16. This Statement of Ownership will be printed in the 2/10 issue of this publication.
17. I certify that all information furnished on this form is true and complete.
Michael Barbee, Corporate Circulation Director, Date: September 24, 2011

December 2011 LGB / G Scale

30 Day Money Back Guarantee. All orders add U.P.S. Prices are subject to change without notice. N.Y.S. residents add appropriate sales tax. Make all checks payable to **Nassau Hobby Center** All Major Credit Cards Accepted.

13 W. Merrick Rd. Freeport, New York 11520 Tel. (516) 378-9594

Mail order hours 9AM to 6PM
Monday to Saturday

LGB Freight Car List

3042 Zilleratal Bier Cask Car 74.99
3125 Circus Sightseeing Car 69.99
4003 SR "Das Tolle Ding" Cntnr Car 49.99
4003 Container car 39.99
4010 European Flat car 39.99
4023 European Flat car 39.99
4024 European Gondola 39.99
4025 Cement container car 39.99
4026 Beck's Beer Box car 49.99
4027 Brown Swiss Box Car 49.99
4028 "Henniez" Boxcar 49.99
4029 Boissons Box car 59.99
4030 DR Box Car 49.99
4031 Pepsi Box Car. 74.99
4032 Cadbury Box car 49.99
4033 Chiquita Banana Box car 49.99
4034 Cardinal Beer Box Car 49.99
4035 European Box car 49.99
4036 Circus Box car. 49.99
4037 Flat w/circus office 59.99
4038 Flat w/circus cage 59.99
4039 FKB/DEV Boxcar 49.99
4041 Hopper Car 49.99
4042 Crane Car 74.99
4049 Operating Searchlight car ... 74.99
4050 Pipe Car 49.99
4055 Cement Mixer flat. 69.99
4058 Lg Deprsd Transformer car 199.99
4059 Flat w/2 mercedes 74.99
4060 D&RG Flat Car 49.99
4063 European Box car 69.99
4065 D&RG Caboose 74.99
4067 D&RG Box car 69.99
4068 D&RG Cattle car 69.99
4069 Container car LGB. 69.99
4069 Container car Lehmann 69.99
4070 Budwiser Reefer 119.99
4071 REA reefer 169.99
4071 WP&Y Caboose 109.99
4072 Miller Reefer 79.99
4074 Pabst reefer 89.99
4075 D&RG Drover's Cab 129.99
4078 Pulpwood Flat car 79.99
4080 Conoco Tank car 69.99
4085 White Pass Container car ... 69.99
4086 White Pass Duo Cntnr car .. 69.99
4090 Sprite Box car 69.99
4090 LGB Box car 69.99
4091 Rio Grande Box car 69.99
4103 P&O Container car 39.99
4110 Short Flat car 39.99
4111 Tool Car 49.99
4120 Cable flat car 49.99
4126 Thurn & Tamis Box car 49.99
4127 "Cargo Domizil Box Car 49.99
4128 "R.Blank" Box Car 59.99
4131 Lowenbrau Box car 49.99
4140 LG&B Tank Car 49.99
4141 Hopper Car 49.99
4143 Short Ore car 24.99
4159 Flat w/2 convertibles 74.99
4162 Shrt highside Euro gondola . 59.99
4163 Bicycle Box car 69.99
4165 Circus Caboose 74.99
4167 WP&Y Box car 79.99
4168 WP&Y Stock car 69.99
4169 D&RG Flat w/wood load 59.99
4174 D&RG Reefer 69.99
4180 Red Crown Tank car 69.99
4240 Mobil Tank car 49.99
4263 Lg. European box car 59.99
4280 Shell Tank car 69.99
4291 Coke "Real Thing" Box car .. 79.99
4328 "Der Gute Apnzlr Kase" Box 59.99
4472 LGB Beer car 69.99
30430 Short Sightseeing car 69.99
30440 2 pack Sightseeing cars 59.99
31190 "Stuckgut" Postal Car 99.99
31260 D&SP Sightseeing car 79.99
31430 Short sightseeing cars 69.99
31440 2 pack Christmas Figure cars59.99
40130 Flat w/forklift 29.99
40140 Low Container flat car 39.99
40180 2 pack open side cars 59.99
40190 2 pack Ore cars 59.99
40220 Gondola. 49.99
40480 Short Work office car 24.99
40520 Baggage Box car 69.99
40560 Operating Hot Metal car 149.99
40805 Conoco Tank car 69.99
41023 Cable reel flat 49.99
41210 Gondola 39.99
41220 Steiff Car 139.99
41250 Beton Cement car 49.99
41370 Flat w/circus office 59.99
41380 Flat w/circus cage 74.99
41610 LGB Operating dump car. . 124.99
41613 LGB dump car 49.99
41653 Circus Caboose 74.99
41730 C&S High side gondola 49.99
41760 SF Hopper car 59.99
41850 V-8 Box car 79.99
41911 Campbell's Soup Box car ... 99.99
41913 CN Box car 79.99
42100 Flat w/Gnomys 74.99
42100 Christmas flat w/Gnomy's. .. 99.99
42170 2 pack Low Ore cars 59.99
42210 Christmas Gondola w/box ... 59.99
42250 RHb Red Cement car 49.99
42260 Augsburger Box car 49.99
42310 Lowenbrau Box Car 49.99
42313 Lowenbrau Beer car 49.99
42580 Lg Deprsd Cable Reel car . 199.99
42600 Flat Car 2 pack 79.99
42610 2 pack low gondola's 79.99
42690 C&S Flat Car. 39.99
42720 C&S Reefer. 69.99
42730 NYC High side gondola 49.99
42740 UP Reefer car 79.99
42750 PRR Drover's Cab 129.99
42911 Coke Box car. 79.99
42913 Coke Polar Bear Box car .. 119.99
42914 Diet Coke Box car 119.99
43100 Steiff Car 139.99
43170 2 pack Cable Reel cars 59.99
43210 Short European Gondola 39.99
43250 BCU Cement car 49.99
43400 DEA Tank Car 49.99
43600 PRR 2 pack flat cars 79.99
43614 Train in a bottle flat car 99.99
43650 C&S Caboose 74.99
43670 Rio Grande Box car 79.99
43672 LG&B Box car w/sound 119.99
43714 SF Caboose 129.99
43803 PRR Tank car 69.99
44110 Tool Car 49.99
44210 Steiff Car 139.99
44260 Berliner Kindl Box car 49.99
44280 Meinl Kaffee Box car 49.99
44350 European Box car 49.99
44353 Ausburger Box car 59.99
44650 Christmas Caboose 119.99
44653 Christmas Caboose 119.99
44750 C&S Drover's Cab 129.99
44790 Coke Caboose 139.99
44910 McDonald's Box car 79.99
45030 Mannes Container car 49.99
45170 2 pack Barrel cars. 59.99
45280 Nesquick Box car 69.99
45352 Coke Sound Box Car 99.99
45400 Minol Tank car 49.99
45403 European Red Tank car 49.99
45670 C&S Box car 69.99
45710 Coke Caboose 129.99
45720 SF Reefer car 69.99
45790 Undec. Caboose 129.99
45910 SF Box car 79.99
45913 SF Box car 79.99
45916 GN Box car 79.99
45918 NP Box car 79.99
46350 European Box car 49.99
46353 European Box car 49.99
46355 European Box car 49.99
46405 Tank car "Aral" 49.99
46760 UP Hopper car.. ..... 79.99
46790 B&O Caboose 129.99
46913 Campbell's Soup Box car ... 99.99
47350 "Seefische" Box car 59.99
47400 Christmas Tank Car 74.99
47655 Undec. Caboose 74.99
47670 Winchester Box car 149.99
47674 Christmas Box car 119.99
47710 Radio Flyer Cab 119.99
47720 MDT Reefer car 69.99
47790 GN Caboose 99.99
47910 SP Box car 79.99
47913 NYC Box Car 79.99
47916 Southern Box car 69.99
72861 WP&Y 3 Car set 349.99
72862 Wild West 3 car set 349.99
93001 Short Pass. Car 29.99
94005 Short Gondola car 24.99
94006 Short Gondola car 24.99
94007 Short Box Car 24.99
94008 Short Exploding box car 49.99
94040 Short Tank car 24.99
94067 Short LGB boxcar 29.99
94069 Short flat w/payloader 29.99
94080 Short Tank car 24.99
94405 Short Gondola w/load 24.99
94505 Short Gondola w/load 24.99
94607 Short Box car 24.99
4021-CT Christmas Gondola 59.99
4028-B Berlin Box car 49.99
4040B BP Tank Car. 49.99
4040C Tank Car 49.99
4040C Tank car "Leuna" 49.99
4040C BASF Tank car 49.99
4040E Esso Tank Car 49.99
4040S Shell Tank car 49.99
4060-DG Wilson Brs.
Circus Flat w/cage 99.99
4065-EO3 PRR Caboose 74.99
4065-GO1 C&S Caboose 99.99
4065-LO1 LG&B Caboose 74.99
4065-WO3 White Pass Caboose 74.99
4067DG Wilson Brothers Box car ... 89.99
4067-DO1 D&RG Box car 69.99
4067-DO3 SF Box car 79.99
4067-FO1 NYC Box car 69.99
4067HD Harley Davidson Box car 149.99
4067-KO1 State of Maine Box car .. 99.99
4067-WC Uintah Box car 129.99
4068DG Wilson Brothers Stock car 89.99
4068-NO1 BN Stock car. 69.99
4072-PO2 Col. Midland reefer 69.99
4073-CO3 D&RG High side gondola39.99
4074-BO2 D&SP Tiffany Reefer 69.99
4074-ZO2 Schlitz Reefer 79.99
4075-DG Wilson Brs Drover's Cab 129.99
4076-MO1 Burlington Hopper 69.99
4076-WO2 White Pass Hopper 69.99
4076-XO1 Peabody Hopper 69.99
4080-DG Wilson Bros. Tank 79.99
4080-WO1 White Pass Tank car 69.99
4080-YO1 Trans. Tank car 69.99
4080-YO2 Gramps Tank car 69.99
4080-YO3 Rio Grande Tank car. 69.99
4080-YO4 Shell Tank Car 119.99
4080-YO4 Shell Tank car 69.99
4080-YO5 San Diego tank car 69.99
4085-CC LGB Club Flat. 99.99
4135-S Steam Sounds Box car 119.99
4136-S Circus Sound car 119.99
4160-DG Wilson Bros.
Circus Flat w/cage 99.99
4191-CS Campbell's Box car 69.99
4260-DG Wilson Bros.
Circus Flat w/tableau 99.99
4267S LG&B Sound box car 124.99
4268S Sound Stock Car. 124.99
4290-VW VW Box car 109.99
4335-S Christmas Sound car 119.99
4360-DG Wilson Bros.
Circus Flat w/tractor 119.99
4435HB Happy Birthday Sound Car 99.99
4491MD McDonald's Box car 99.99

Toy Train Company (Lehmann-LGB) Trains

94042 Flat w/derrick 39.99
94092 Aqua Car 49.99
94108 Exploding Box car. 49.99
94169 Flat w/truck 29.99
94269 Flat w/forklift 29.99
94380 Cow Tank car 39.99
94469 Helicopter flat 39.99
94905 Chia Pet flat car 39.99
94969 Animal Flashlight flat 39.99

EAGLEWINGS IRON CRAFT

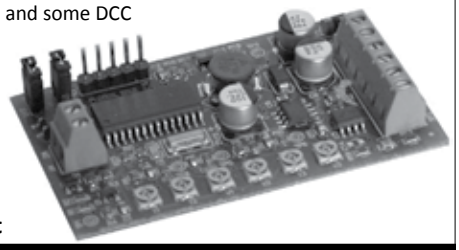
"Buy your buildings just once!"
Solid Steel Buildings

For many more buildings browse
www.eaglewingsironcraft.com

DC Steam & Diesel Soundcards $79

+ $6 Post & Packing

- ✓ For RCS, LGB, Train Engineer, TE Revolution, RailBoss and other major brands.
- ✓ Customizable using a screwdriver - no programming needed
- ✓ Ideal for battery or DC track powered locos - and some DCC
- ✓ Small size for easy fitting - only 2.6" by 1.5"
- ✓ Adjustable single or dual tone diesel horn
- ✓ Adjustable plain or chime steam whistle
- ✓ Very easy to connect – no soldering
- ✓ Switchable bell



Read about them, Hear them, Buy them at

www.mylocosound.com

WORLD'S LARGEST INDOOR TRAIN DISPLAY

25,000 SQ. FT. LAYOUT

HUNDREDS OF BRIDGES AND TRESTLES BUILT FROM SCRATCH

16 FT. HIGH MOUNTAINS

TRAVEL THROUGH THREE TIME PERIODS OF RAILROADING

Train Journey
Imagination Junction
American Railroad Museum
ExpoCenter
A-Maze-N Funhouse

ENTERTRAINMENT JUNCTION

www.EnterTrainmentJunction.com

7379 Squire Court
West Chester, OH 45069
(513) 898–8000

YOU NEED MORE POWER

Bridgewerks is committed to offering the best power supplies available, and guarantees unquestionable quality and lifelong enjoyment. See other products at www.bridgewerks.com:

- Magnum 4000
- Magnum 200-R
- Magnum 220-RM
- Magnum 5, 10 & 15 SR
- Magnum 25-TDR
- Mag-15
- UR-15
- Mag-Mate
- RC-100 Remote Throttle
- Mini-Mag 3-S
- EngineJack

The MAGNUM 220-RM features:

20 AMPS OF PURE DC POWER!

- 2 Separate track controls
- Analog meters on each track
- DC output
- Speed governors
- Switchable momentum

BRIDGEWERKS

Magnum 220-RM Dimensions: 6" high x 11 ⅜" wide x 12 ¾" deep

Now available at your favorite retailer! ■ (800) 908-9997 ■ www.bridgewerks.com

COMING IN THE April issue

Featuring **Shawn Viggiano's Kittatinny Mountain Railroad**, an honorable mention winner from our Small Garden Railway Contest

More on **weathering** and **how to make your own people**

A unique way to **add complex interiors to your structures**

ON SALE March 13

www.GardenRailways.com

Garden RAILWAYS® MAGAZINE

RailKing One-Gauge
Factory Direct Sale
SAVE $150!

RAILKING ONE-GAUGE TRAINS
YouTube
©2012 M.T.H.Electric Trains
Shop Online at
www.buymthtrains.com

MODEL CITIZENS™
NEW
1:29 &1:32 scale figures
Send $1 for brochure or visit us on line.

SLM P.O. Box 28047 Baltimore, MD 21239
www.slmonline.com

SmallPlants.Com
Let us be your first choice for dwarf conifers, japanese maples, and more.
Evergreen, deciduous, flowering, variegated, and all small!
Next stop:
www.smallplants.com

Get **MORE** of what you **LOVE** with
www.GardenRailways.com!

24 HOUR SECURE ON-LINE ORDERING
www.WholesaleTrains.com
DAILY INTERNET SPECIALS
ON-LINE ORDER TRACKING
HUGE INVENTORY
TOLL FREE ORDERING
855 253 2711 or 607 215 0019
EXPORT ORDERS WELCOME
LANTZ'S HOBBY SHOP • 3312 S. MAIN ST • HORSEHEADS NY • 14845

Helms Bakery Truck

Never Before Manufactured!
1931 Divco Twin Coach

(310) 322-8200
www.**judeescollectibles**.com

BUILD A UNIQUE RIDE-ON GARDEN ENGINE

- ✓ ELECTRIC GOLF CART MOTOR DRIVEN
- ✓ AMPLE POWER FOR ADDED CARS
- ✓ SIMPLE 18 GAUGE TRACK DESIGN
- ✓ OVER 60 PAGES OF DRAWINGS, PHOTOS AND INSTRUCTIONS. SEND $59.95

CHECK OR MONEY ORDER TO JIM MILWAIN
C23255 S.R. 18A, RR2 • CANNINGTON, ONTARIO, CANADA L0E1E0

WE PAY POSTAGE

Barry's Big Trains

- *Bachmann Repower Conversions*
- *Big Hauler, Consolidations and Custom Drives*

P.O. Box 1119
Tolleson, AZ 85353-1103
623-936-6088
VISA & MC accepted
www.barrysbigtrains.com
barrysbigtrains@live.com

FLEXXBED™

The Best Choice for a Quiet Layout

Curves in One Piece!

INDOORS OR OUT

to the radius of any brand of track

made in the USA

FLEXIBLE WEATHERPROOF VINYL ROADBED

SAMPLES? Specify your scale & mail $2 cash to: HOBBY INNOVATIONS • Dept. G
PO Box 676 • Mountain City • TN 37683
Info 423-727-8000 or www.FLEXXBED.com

Windows, Doors & More

STONEWORKS
www.RRStoneworks.com
PO Box 190, Shell Knob MO 65747 Toll Free: 1-877-473-4119

Digital Sound Modules

Bring your layout to life with sound!
Trains, Animals, Nature, City, Industrial
These are just a few of over 100 sounds

HQ300 Grade Bell
HQ420 Barnyard
HQ505 Brook/Birds
HQ602 Industry
HQ610 Sawmill
HQ640 Honkytonk Bar
HQ646 Hobo Campfire
HQ651 Church Bell
HQ676 Circus Music
HQ701 Track Crew

HQ Series $34.95 ea.

Place these modules around the layout in buildings or on trains. Add power, a speaker, & switch.

Speakers: (2" $6 ea.) (2.5" $7 ea.) (4" $9 ea.) S&H $7 USA

http://www.ittproducts.com
I.T.T.C. P.O. Box 5042 West Hills, CA 91308
818-926-1143 *Dealers Welcome*

NOT ALL METAL WHEELS ARE CREATED EQUAL℠

F26RDS Dual Ball Bearings for AMS/Accucraft & Bachmann

Upgrade to higher quality wheels!
Easy Installation – Reliable on all large scale track
Ask your local dealer, or call us direct
PO Box 1722 • 1000 Oaks, CA 91358 • 805-492-5858 • M-F 9-5 P.S.T.
www.trainwheels.com or glraymond@earthlink.net
GARY RAYMOND ***Quality Large Scale Metal Wheelsets***™

Designers and Installers of Garden Railroads

Room To Grow

Serving the entire East Coast for over two decades.
Serious Inquires Only

We also install:
Water Gardens - Retaining Wall - Paver Patios - Illumination

Inside Your Home | (717)-599-5976 | Outside Your Home

www.room2growlandscaping.com

Battery Power Your TRAINS

Now available

RailLinx!

RCS of New England
Sales ■ Installation ■ Service
603-321-1347 ■ www.remotecontrolthrottles.com
email: donsweet@remotecontrolthrottles.com

DCC Bitswitch™

Layout Management and Control Accessories Compatible with all NMRA, DCC or LGB MTS Layouts

Signals w/wo Auto-Brake - Traffic Separation
Automatic Timed Station Stops
Eliminate X-ing Collisions & more

You're the Engineer and/or Automated Display Operation

WWW.DCCBitSwitch.com
303-674-3114

Colorado Model Structures

Wally's Standard Service
$24.95 + S&H

www.coloradomodel.com

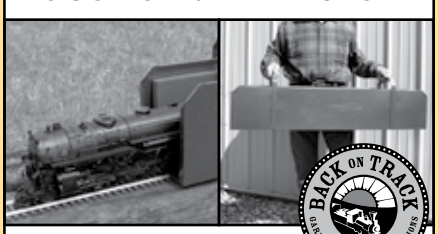
"Your Large Scale Train Headquarters"...

All Aboard For Great Prices & Selection From All the Major "G" Scale Manufacturers...

Aristo-Craft • CanadaGScale
Phoenix • Llagas Creek Railway
LocoLinc • Gnome Miniature Eng.

BIGBOYZTRAINZ.com
sales@bigboyztrainz.com • Hamilton, Ontario Canada
905-387-7658

BACK ON TRACK™ LOCOMOTIVE TRANSPORT



406-222-5499
www.backontrackrr.com

PIKO G SCALE TRAINS

LOCOS | ROLLING STOCK | BUILDINGS
SUPER LOW PRICES | 100% GERMAN-MADE

BLACK FOREST
WWW.BLACKFORESTHOBBY.COM

SOLID OAK OVERHEAD RAILWAY SYSTEMS

ABOVEALLRAILWAYS.COM

- *We'll design and build your overhead railway system to your specifications*
- *Craftsman Quality Work*

Call Us For A Quote:
818-996-1101

ABOVE ALL RAILWAYS

AIRWIRE 900 | QSI Solutions | PHOENIX
Reflections Of Nature, LLC
(800) 535-8482
www.Trains.HealthTrains.net
trains@healthtrains.com
Other DCC
Great Prices

www.GardenLines.net
Nancy Norris
creates gardens
for model trains!
925.408.9402 nunorris@aol.com Lic.# 870086

CONDUCTIVE PRODUCTS
FOR TRAINS & RAILWAYS
• Epoxy, Grease & Paints with Real Silver Particles
• "Solderless" Adhesives for LEDs and Switches
• Carbon Paint for Wheels and Tracks
www.semicro.org/trains.aspx
Ph: (301) 975-9798
solder!

SANDY MUSH HERB NURSERY
1625 varieties including:
• Traditional & Rare Herbs
• Decorative Perennials & Trees
• Scented Geraniums & Natives
www.sandymushherbs.com
Send $5 for Handbook/Catalog to:
Dept. GR12, 316 Surrett Cove Rd. Leicester, NC 28748-5517

Custom Built & Painted Large Scale Trains
Custom Decals made to order in all scales
Catalog $5.00
Refundable on orders of $50.00 or more.
SHAWMUT CAR SHOPS
307 North Michael St., St. Marys, PA 15857
www.shawmutcarshops.com • 814-834-9455

ASSORTED
GROUND COVERS
10 FOR $35.00
PLUS $15 S&H
www.miniforest.com or phone: 503-632-3555

Give the gift of
Garden Railways magazine! Visit
www.GardenRailways.com today!

"G" Scale Engineering LLC
Johnny Hanson
Owner and Designer
Cell 503-910-3652
Message 503-362-7011
gscaleengineering.com gscaleengineering@yahoo.com

Don't Just Go In Circles...
Slow-Down Station Stops
Multiple Trains
Passing Sidings
Reversing Loops
Automatic Reversing
NOT DCC
RRConcepts.com

Rainbow Ridge
Specializing in G scale products for garden & overhead railways.
Ross & Sue Piper
Phone & Fax: 619/561-0643
www.rainbowridgekits.com
• Finished models & assembled kits of Precision Board
• Pattern Precision Board sheet for scratch builders
• Custom signs for your buildings
• Corrugated metal roofing material
• Solid oak scenery and brackets for indoor railways
• Exterior lights, saloon doors, flickering fire electronics

G Scale Graphics
Simple Low Cost Battery Power
RailBoss Plus - 2.4GHZ R/C
One Transmitter for all your locos - Run any 2 at a time
Automated Station Stops - 4 sound triggers
Low Battery Warning system for Lithium-Ion/Li-Po
Critter Controls No R/C - Semi-Automatic
& Battery Conversion Modules Less wiring
and Custom Vinyl Lettering since 2004
www.GScaleGraphics.net
GScaleGraphics@comcast.net 970-581-3567

Full Size Large Scale Plans
Realistic plans of bridges, farm and small town buildings, railroad trackside; water tanks, stations, section house, engine sheds, an authentic covered bridge, even a box car, many based on historical structures.
$4 for catalog, refundable with order, or
www.brewerplans.com
We accept Visa/MasterCard.
Brewer R. R. Plans, 1825 Evergreen Dr., Agassiz, BC
Canada V0M 1A3 Tel 604-796-3732
Fax 604-796-3738, E-mail brewer@island.net

SOMETHIN' DIFFERENT™
LOW VOLTAGE LANTERNS
Tired of the same old low-voltage lighting?
Try SOMETHIN' DIFFERENT!™
Authentic hurricane lanterns made for low voltage electric
Accented specialty lighting for that rustic look.
A must for the outdoor train garden just to add a touch more to that railroad atmosphere.
Colors available are railroad red, rust brown & black.
www.somethindifferent.com
For more information please write or call us!
3485 Vicki Ct, Simi Valley, CA 93063
(805) 522-2979 email: somethind@aol.com

SIMPLE...ATTRACTIVE...AFFORDABLE
G-Buildings & Façades
Over 100 Designs for Indoor/Outdoor Use
www.gtrainbuildings.com
YES Enterprises
772-485-7005

Cedarleaf Custom Decals
www.trainweb.org/pcsrr
Custom decals and logos for your railroad.
scedarleaf@aol.com
(928) 778-3732 or (520) 831-3390

Custom Model Products®
www.custommodelproducts.com
Manufacturer and Importer of Quality Brass Models.
(800) 443-8567 or (925) 687-3500

Desert Bridges
www.desertbridges.com
Custom Bridges, Buildings and Trestles
A look of the past – built to last
480-251-1657 desertbridges@yahoo.com

GARDEN-TEXTURE
www.gardentexture.com
1:20.3, 1:22.5, 1:24, and 1:29; Since 1991
Buildings, Bridges, Trestles, Scratch Builder Supplies,
Scale lumber, Windows & Doors, Roofing
678-880-3469 gardentextur@earthlink.net

Grandt Line Products
www.grandtline.com
Architecture detail • Builder's hardware
All modeling scales • On3 and HOn3 craftsman kits
HO $6.00 • O/S $6.95 • Arch. $6.50
Check out our website or call for more info.
e-mail: grandt@pacbell.net • (925) 671-0143

Pacific Coast Garden Railway Supply
www.pcgrs.com
Quality and craftsmanship. Supplier of hand built structures & accessories since 1993. Helping you distinguish your garden railroad from all others!
12081 Pradera Road, Camarillo CA 93012

Take your hobby outdoors with 6 issues of the BEST garden railroad tool!
Go to
http://Subscribe.GardenRailways.com
today!

Directory of large-scale train retailers

Say you saw their Directory ad in *Garden Railways*

Spaces are sold on a year's basis (six issues) at $177 per year (payable in advance) or at $36 per month (billed to established accounts for one year minimum). Ads will be set in standard listing typography. All insertions must be consecutive and may be invoiced if you have credit established with us. No mention of wholesale or mail order business permitted. Send your ads to: *Garden Railways* Directory, 21027 Crossroads Circle, PO Box 1612, Waukesha, WI 53187-1612. For additional information 1-888-558-1544 ext. 815. Feb. 2012 closes Nov. 14, Apr. closes Jan. 16, June closes Mar. 12, Aug. closes May 10, Oct. closes July 16, Dec. closes Sept. 17.

ARIZONA • Tucson
G, HO, N scales. Largest in stock selection of G scale in AZ. LGB, Aristocraft, USA, Hartland, Bachmann, Piko. Phoenix Sound Systems authorized sales & service. Diecast autos, wood, plastic model kits, model rockets.
HOBBY PLACE/ACE HARDWARE
6959 East 22nd St. 520-747-9473

CALIFORNIA • Clovis (Fresno)
Z-G scale trains -- vintage trains. Buy - sell - trade - repair - Lionel dealer. Railroad collectibles as well as antiques. Tues - Fri 10:00-6:00, Sat 10-5
www.roystrains.com
ROY'S TRAINS & THINGS
352 Pollasky Ave. 559-325-0102

CALIFORNIA • Concord
Largest selection of trains in the East Bay. Scratchbuilding supplies for all scales. Discount prices and friendly help. Open Tuesday - Sunday.
Website: www.just-trains.com
JUST TRAINS
5650-H Imhoff Dr. 925-685-6566

CALIFORNIA • Escondido
Large selection Z to G. LGB, Lehmahn, Bachmann, Lionel, Atlas Athearn, Märklin, Micro-Trains, Piko, Woodland Scenics. Great prices and selection.
Open 7 days: Mon-Fri 10-7, Sat & Sun 10-6
VALUE CRAFT
342 W. El Norte Pkwy. 760-747-9222

CALIFORNIA • La Mirada
We now carry Z, N, HO, S, O and G. Lionel, LGB, S-Helper and MTH. Mon-Sat 10-6. Closed Sun.
R HOBBIES
14269 Imperial Hwy. 562-777-9492

CALIFORNIA • Novato
All popular train scales, scenery, layouts. Full service hobby shop. 20 min. north of San Francisco. R/C and more. Mon-Fri 9-6, Sat-Sun 10-5. www.dollhouses-trains-more.com
DOLLHOUSES, TRAINS & MORE
300 Entrada Dr. 415-883-0388

CALIFORNIA • Roseville (Sacramento)
Exclusively model trains since 1989. Athearn, Kato, MDC, Lionel, Atlas, LGB, Märklin, Brass Imports, books, detail parts. Everyday low prices. Open 7 days.
www.rrhobbies.com
RAILROAD HOBBIES
119 Vernon St. 916-782-6067

CALIFORNIA • Sacramento
6,000 Sq Ft. model train store. Consignments all scales. Aristo-craft, USA, Bachmann, Pola. Authorized Lionel dealer. Open 7 days. Toll free: 877-276-8383
BRUCE'S TRAIN SHOP
2752 Marconi Ave. 916-485-5288

CALIFORNIA • Sacramento
Specializing in 'G' scale LGB, Accucraft, USA Trains, Piko, Aristo-Craft. Working layout. Mon. thru Fri. 10:30-7:00; Sat. 10:00-5:00.
R/C COUNTRY HOBBIES
6011 Folsom Blvd. 916-731-5868

CALIFORNIA • San Diego (La Mesa)
Exclusively trains. Craft kits, detail parts, scratch supplies, books. Ride the trolley to Reed's. Open Mon through Sat 10:00-6:00; Sun 12-4.
www.reeds-hobbies.com
REED'S HOBBY SHOP
8039 La Mesa Blvd. 619-464-1672

CALIFORNIA • Santa Clara
LGB, USA, Accucraft, Live Steam
Great Prices
Huge book selection
Fax: 408-985–2423.
THE TRAIN SHOP, LLC
1829 Pruneridge Ave. 408-296-1050

COLORADO • Denver
Since 1938! Our store is over 18,000 sq. ft. Approx. 1,800 brass models & 1,000 book titles! All scales & gauges. Open daily! See all this & more in our on-line catalog.
http://www.caboosehobbies.com
CABOOSE HOBBIES, INC.
500 S. Broadway 303-777-6766

FLORIDA • Ft. Lauderdale (Plantation)
Brass, plastics, railroad items of all types. G, Z, N, HO, HOn3, On2, On3, On3O, 33,000 sq. ft. Lionel, MTH. Kits & supplies. Since 1972. Mon-Sat 10-8, Sun 10-6.
www.HobbySuperstore.com
WARRICK CUSTOM HOBBIES
7676 Peters Road 954-42-HOBBY

FLORIDA • Orlando
One of Florida's largest model train & hobby shops. All scales. Authorized Lionel & MTH service station. Mon-Thu 9-7:30, Fri 9-9, Sat 9-6.
20 min. from Disney.
COLONIAL PHOTO & HOBBY
634 North Mills 800-841-1485

FLORIDA • Tampa/St. Pete/Clearwater/PP
Outdoor garden railroad operates Sat 11-5. Home of stainless steel track and Bridgewerks bridges. E-mail: hrtrains@hrtrains.com
Daily 10-6, Sat 10-6, Sun 11-5
www.hrtrains.com
H & R TRAINS, INC.
6901 US 19 N, Pinellas Park 727-526-4682

GEORGIA • Lawrenceville
www.legacystation.com
800-964–8724
LEGACY STATION, LTD.
251-F Hurricane Shoals Rd. 770-339-7780

ILLINOIS • Woodstock
Aristo, Accucraft, Bachmann, LGB, USA
Mon-Fri 9-5, Sat 9-4, Sun closed
www.StAubinTrains.com
ST. AUBIN TRAINS
11100 Route 176 815-334-9100

IOWA • Polk City (Des Moines)
Accucraft-Airwire-Aristo-Bachmann-Digitrax HLW-Kadee-Just Plain Folks-LGB-Massoth Ozark-Phoenix-Piko-QSI-Split Jaw-Train-Li & USA. Minutes from I-80 & I-35, 1-800-266-4337 www.ReindeerPass.com
REINDEER PASS AT KIDMAN TREE FARM
3665 NW 98th Avenue 515-984-6946

KANSAS • Wichita
Aristo, Bridgewerks, Hartland, Phoenix, Piko, Woodland Scenics & others. Books puzzles, children's items. Service & repair. Thur., Fri. 12-7; Sat. 10-7; Sun. 12-5
GARDEN RAILWAY GIZMOS
1425 N. Broadway 316-262-4300

MARYLAND • Annapolis
If we don't have it, we'll get it! LGB, Woodland Scenics, Walthers Dealer, Aristo, Accucraft, Delton, Pola, Lionel, Bachmann, Hartland, Spectrum, Proto 2000. Mon-Sat 10-6. Full line Kalmbach!
STAR HOBBY
1564 Whitehall Rd. 410-349-4290/4291

MICHIGAN • Bridgeport
Scales Z to G. All at discount prices. Am. Models, Aristo, Athearn, Atlas, Bachmann, Con-Cor, IHC, USA, Kadee, Kato, K-Line, Lionel, MTH, Walthers, LGB, HLW.
www.jvrailroad.com
JUNCTION VALLEY RR HOBBY SHOP
7065 Dixie Hwy. 989-777-3480

MINNESOTA • Buffalo (Twin Cities Area)
G-Scale only featuring large selection of LGB & USA, Artiso and Massoth train items. Mon-Fri 9-5. www.onlytrains.com
ONLY TRAINS
800-789-5738
308-B Brighton Ave. 763-684-4131

NEBRASKA • Omaha
G Scale Only
USA Trains - Aristo-Craft
LGB Authorized Train Shop
Large Parts Inventory
UPS Shipping
HOUSE OF TRAINS
8106 Maple 402-934-RAIL (7245)

NEW JERSEY • Cedar Grove
Celebrating our 31st Anniversary 1979-2010. Authorized Märklin Digital Dealer. Lionel Station & V.A.D. LGB Train Stop. O, O-27, HO, N & Z scale. We sell the best & service the rest.
TONY'S TRAIN TOWN
575 Pompton Ave. 973-857-2337

NEW JERSEY • Kearny
Authorized Lionel, MTH, Atlas O gauge. LGB and Aristo train retailer. Track and accessories, books, videos. HO and N scale sets and repairs.
www.genestrainstop.com
GENE'S GRAND CENTRAL STATION
228 Belleville Tpke. 800-955-3992

NEW JERSEY • Somerville
Specializing in service.
Tues to Fri 11 am - 7 pm,
Sat 11 am - 5 pm, Sun 12 pm - 4 pm.
www.biglittle.com Fax # 908-685-8894
THE BIG LITTLE RAILROAD SHOP
63 W. Main St. 908-685-8892

NEW JERSEY • Vineland
Lionel Value-added dealer, Heritage dealer Lionel Service Station
MTH, Atlas, Thomas the Tank & Friends LGB, ARISTO CRAFT, USA and More!!
www.trainsnthings.com
TRAINS 'N THINGS
936 E. Weymouth Rd. 856-697-8844

NEW YORK • Buffalo
All Scales/Brands. Open Daily.
Visit our 39-ton caboose! Near Walden Galleria. Lionel Authorized Service Station/ Value-Added Dealer
www.niagarahobby.com
NIAGARA HOBBY & CRAFT MART
3366 Union Rd. (at Walden) 716-681-1666

NEW YORK • Horseheads
N, HO, O, & G scales.
Authorized Lionel dealer.
www.wholesaletrains.com
LANTZ TRAIN SHOP
3312 S. Main St. 607-215-0019

PENNSYLVANIA • Philadelphia (Feasterville)
Lionel, American Flyer, LGB, MTH, Marklin, Bachmann, Williams. HO, N & Z. We buy, sell & repair. Mon-Fri 12-8; Sat 10-5 (Closed Sat. July & Aug.) Sun. in Dec.10-5
www.JoesTrainStation.com
JOE'S TRAIN STATION
21 East Street Rd. 215-322-5182

TEXAS • Dallas (Addison)
Great discounts on thousands of G to Z scale items. Easy DCC, NCE & Digitrax dealer. Monday - Saturday 10-6.
DISCOUNT MODEL TRAINS
4641 Ratliff Lane 972-931-8135

VIRGINIA • Newington
Additional loc: Hobbies Etc. in Warrenton, VA 540-347-9212. Märklin, MTH, Lionel, LGB, Aristo-craft, Slot cars & more! Open 7 days, Nov 15-Dec 25, otherwise closed Mon. Located off I-95 & I-66. www.trainsetc.com
TRAINS ETC.
8245-A Backlick Rd. 703-550-1779

CANADA–AB • Nanton
Specializing in G gauge & Thomas wooden, Aristo-Craft, LGB, USATrains, Massoth, Phoenix Sound, Piko, Pola. Mail order welcome. Open all year. No. Amer.'s busiest garden RR. 5/1-10/1. www.ultimatetrains.com
ULTIMATE TRAINS, LTD.
2121 18th Street 403-646-1190

CANADA–MB • Hartney
Manitoba's G Scale Headquarters. We accept special orders. USA Trains dealer. Canada G Scale Trains, Piko and LGB from Walthers, Aristo-Craft & Accucraft. Thur-Sat 10-5. www.westrailwaystudios.com
WEST RAILWAY STUDIOS
206 West Railway 204-858-2596

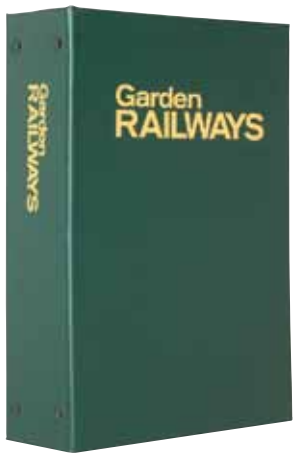
CANADA–ON • Alliston
HO, N , G, On30, Steam and Diesel. Limited Edition Art, Books and Videos. Live steam.
5 days a week (closed Mon & Tues)
www.hvrr.ca
HOCKLEY VALLEY RAILROAD
4492 Adjala-Tecumseth Townline 705-435-7024

CANADA–ON • Castleton
Specializing in Garden Trains. USA Aristocraft, Kadee and more. Specialty Orders. Authorized service for Eastern Ontario.
KINGS HOLLOW GARDEN RAILWAY
111 Dingwall Road 905-344-8363

CANADA–ON • Guelph/Puslinch
Large scale trains only. Aristo Craft, USA Trains, Phoenix Sound, Cordless Renovations and much more, R/C & battery conversions. See our web site for monthly sales. Open 7 days a week. www.wgrr.ca
WINONA GARDEN RAILWAY
7457 Boyce Drive 519-763-9477

CANADA–ON • Toronto (Markham)
Model Railroad Specialists since 1962
Lionel Authorized Distributor & Repair Center
All Scales - Special Orders
Closed Mondays www.georgestrains.com
GEORGE'S TRAINS LTD.
550 Alden Rd., Unit 101 905-470-6200

Run your Directory ad in the next issue of
Garden Railways!
Call 1-888-558-1544, ext. 815 for more information.
Garden RAILWAYS



PROTECT YOUR INVESTMENT!

Preserve your library of *Garden Railways* magazines with durable hardcover binders.

ITEM NO. 14022
1 for $13.95 • 3 for $38.95 • 5 for $59.95

ORDER YOURS TODAY!

call 1-800-533-6644
Mon–Fri, 8:30 a.m.–4:30 p.m. Central Time.
Outside the U.S. and Canada, call 262-796-8776.
fax 262-796-1615
www KalmbachStore.com
Secure online ordering available.

Garden RAILWAYS®

P11065

R2003

28th Garden Railway Convention 77
Above All Railways....86
Accucraft Company....7
Alpine Railworks Worldwide, LLC 86
American Lawn Lights 71
American Made Steel Bridges 71
Amherst Railway Society....72
Aristocraft....3, 11, 92
Art Knapp Plantland, Ltd....69
Bachmann Industries, Inc....91
Back on Track 86
Barry's Big Trains....86
Bigboyztrainz.com 86
Brewer Railroad Plans....87
Bridgemasters 69
Bridgewerks 84
Caboose Hobbies 28
Cedarleaf Custom Decals....87
Charles Ro Supply Co....12-13
Colorado Model Structures....86
Cordless Renovations....72
Custom Model Products....22, 87
CVP Products 16
Dallee Electronics, Inc....73
DCC-BitSwitch 86
Desert Bridges....87
Die Cast Direct....71
Eaglewings Iron Craft....10, 28, 84
East Gary Car Co....73
Entertrainment, Inc. 84
Fall Creek Railroad Structures....28
Flexxbed Roadbed 86
G Scale Engineering....87
G Scale Graphics 87
G Scale Junction....61
Garden Railways Binders 88
GardenRailways.com 89
Garden Texture 87
Gardenlines.net 87
Graham Industries 51
Grandt Line Products 87
H & R Trains, Inc....75
Hartford Products....10
Hartland Locomotive Works....43
Hillman-Stewart Company 73
Hockley Valley Railroad 71
Innovative Train Technology 86
JS Woodcraft 71
JuDee's Collectibles, LLC 86
Keithco, Inc....75
Kern Valley Railway....57
Lantz's Train Shop....85
Larry G Scale 75
LGB 9
LGB Tours 22
Light Rail Products....73
Llagas Creek Railways....69
Loco-Boose Hobbies 71
Lone Star Bridge 73
M & M Nursery 51
Massoth Electronics USA 57
Massoth Elektronik GmbH....64
ME Taylor Engineering, Inc. 87
Micro Fasteners....73
Milwain, Jim 86
Mini Forests by Sky....28, 87
Mountain Billboards....51
MTH Electric Trains, Inc....85
Mylocosound 84
Nassau Hobby Center 83
NRRR, Inc....69
Ozark Miniatures 64
Pacific Coast Garden Railway....87
PIKO America....4
Pizza Express/LGB Train Shop....10
R & G Railroad Co. 51
R & S Enterprises....80
Rainbow Ridge....87
Ram Track 75
Raymond, Gary 86
RCS of New England....86
Reflections of Nature 87
Reindeer Pass Railroad 70
RGSRR Hobbies 73
RLD Hobbies....21
Charles Ro Supply Co....12-13
Room to Grow....86
Roundhouse Engineering 57
RR Concepts....87
San Diego Garden Railroad Society 51
Sandy Mush Herb Nursery 87
Shawmut Car Shops 87
SLM....85
Smallplants.com 85
Smith Pond Junction....70
Something Different....87
Split Jaw Products....70
St. Aubin....46-47
Stoneworks 86
Sunset Valley Railroad....57
SwitchCrafters....71
Train World 29-31
Train-li-USA....17
Trains & Trees....80
Trainz.com....71
Upland Trains....82
USA Trains 2
Valley Train Station....73
VES Enterprises 87
Walthers 9
Watts Train Shop....28
Z-Stuff for Trains....80

The Advertiser Index is provided as a service to *Garden Railways* magazine readers. The magazine is not responsible for omissions or for typographical errors in names or page numbers.

Get inspired with MORE BENEFITS

Click "Register »" on our home page and get instant access to online benefits like user-submitted videos, participate in reader forums, access monthly product news, and more. You'll also receive the bi-weekly *Garden Railways* e-mail newsletter so you'll be up-to-date on all the latest online extras and what's new in the magazine.

FREE

GR+
Become a Member
Subscriber & Member Login
sign in »
Not a Member?
NEWS / TIPS / REVIEWS / VIDEOS / + MORE
The Garden Railways e-mail newsletter
E-mail address
Get our newsletter delivered to your inbox twice a month

Garden RAILWAYS® MAGAZINE

REGISTER NOW» at www.GardenRailways.com

P15398

The helix vs. scale disparity

by Rex Nichols | Pinetop, Arizona | Photos by the author

The author built a beautiful helix to gain altitude in a limited space. It was successful...up to a point.

The modified helix, remade with the clarity of hindsight, will handle all comers.

Bad things happen when you violate Rule #1: "Always leave room for expansion." Here is my story.

The front yard of our summer retirement home, a corner space of 30' x 300', was ideal for a garden railroad, even though it had some challenges. One of these was an elevation difference of a little over four feet between the house and the street. I determined I could gain a foot by building a perimeter dry-stack retaining wall between the street and the railway, but that still left the proposed town site three feet below and 100 feet away from the logging and mining operations.

Steep grades don't work for trains, so I needed to stuff at least 200 feet of track into 100 feet of space. I remembered a large helix I'd seen on a train trip in Canada, and decided to see what I could design for my situation.

To go up two feet, I needed at least 100 feet of track in a helix to stay below a 2% grade. Sectional track, 16.5' diameter, was available, and 2¼ turns gave me about 116' of length. I was able to reduce the 24" rise requirement down to 20.5" by using entrance and exit ramps. That gave me an even 9" between levels and a 1.5% grade. My LGB track-planning guide showed 7¼" from the bottom of ties to top of the smoke stack for LGB locomotives. Deck timbers (⅝") and planking (¼") brought the total height requirement to 8⅛", which gave me ⅞" of vertical clearance. That seemed like more than enough so I started to plan.

A helix is a fairly complex design. I wanted a sectional design for ease of prefabrication and handling. This helix was to be a triple-decker, so the laws of tunnels also applied: "A train will always derail or stop inside a tunnel, so access is needed wherever your arm can't reach." I designed the helix so that a train could be accessed anywhere along its length. A lot of scratch paper later, I was ready to build.

I built the helix out of ripped cedar fence boards, with 4-40 screws and blind nuts. I prefabricated 26, two-foot sections that winter, then assembled them on site the next summer. So that the first level would marry up with the second, the foundation required a 9" rise, or about ⅓" for each of 26 foundation pads.

Next, I put the sections together, laid the planking, then laid the track. The finished helix was beautiful!

Then I bought a Bachmann 2-8-0 Consolidation. It didn't fit! Bachmann Spectrum is 1:20.3 scale while LGB is 1:22.5. The next summer the engine took half the planking out of the helix, lost the cab cupola, and knocked its smoke stack off too many times to count.

Did I learn my lesson? Nope! I purchased another large engine. While the Connie sort of fit through the helix some of the time, the new Shay didn't even come close. The helix needed to be rebuilt.

I added an inch to each level by replacing all the vertical posts. Each post had to be cut to a different length so I would not have to reset the foundation pads. I had to remove and replace six screws per post, four posts per set, times 26 sets. That equals 624 screws! Those 624 screws had been in place for three years, so not all of them wanted to unscrew easily.

After three days of rework, the helix now allows room for all my *big* engines, with vertical clearance to spare. During those three days, I often thought of the time, effort, and pain I could have saved myself if I hadn't violated Rule #1.

Have you learned a painful lesson?

Tell us about it in 300-500 words, with up to three photos. Send your confessions to "If I'd only known," *Garden Railways*, PO Box 460222, Denver CO 80224, USA, or e-mail *mhorovitz@gardenrailways.com*

Large SCALE

The Original BACHMANN BIG HAULERS

Denver & Rio Grande™ • Item No. 91605

4-6-0 MOVES AHEAD with METAL GEARS

We've made the popular 4-6-0 Steam Locomotive - Anniversary Edition even better with new metal gears and an updated lead truck. With its operating headlight, smoke, and speed-synchronized sound, the "Annie" has long served as the backbone of our Large Scale line. Combining these new features with metal siderods, separate piping, and metal handrails, this 4-6-0 is a locomotive that Mr. Baldwin & Company would be proud to call their own. Visit your favorite hobby dealer to see why the new Annie with metal gears will take the lead in your Large Scale railroad!

SHIPPING NOW! MSRP $399.00

East Broad Top #10
Item No. 91601

Denver & Rio Grande Western™ #178
Item No. 91602

Rio Grande Southern™ #25
Item No. 91603

Southern Pacific Coast #22
Item No. 91604

ET & WNC #11
Item No. 91606

Painted, Unlettered - Black
Item No. 91607

Thousands of Parts, in All Scales, Now Available Online
To order Bachmann parts from our Online Parts Catalog, visit the Parts & Service section of www.bachmanntrains.com and click on the "Order Parts" image. You can also contact the Parts Team at parts@bachmanntrains.com or call 1-800-356-3910 (within the United States) for more information.

BACHMANN 5 QUALITY SINCE 1833

Bachmann Industries, Inc. • 1400 East Erie Avenue • Philadelphia, PA 19124 • www.bachmanntrains.com

PACIFIC 4-6-2

1/29 SCALE

G 45 mm

PACIFIC 4-6-2 ROADNAMES
21401 PACIFIC PRR/PENNSYLVANIA
21402B PACIFIC B&O BLUE
21405 PACIFIC SR/SO. RAILWAY
21407 PACIFIC NY CENTRAL
21408 PACIFIC UP/UNION PACIFIC
21409 PACIFIC D&RGW/RIO GRANDE
21410 PACIFIC SP/SOUTHERN PACIFIC
21411 PACIFIC ATSF/SANTA FE

MALLET 2-8-8-2

1/29 SCALE

G 45 mm

MALLET 2-8-8-2 ROADNAMES
21601 MALLET PRR/PENNSYLVANIA
21602 MALLET ATSF/SANTA FE
21603 MALLET UP/UNION PACIFIC
21604 MALLET D&RGW/RIO GRANDE
21605 MALLET C&O/CHESAPEAKE & OHIO
21607 MALLET N&W/NORFOLK & WESTERN
21608 MALLET B&O/BALTIMORE & OHIO
21610 MALLET GN/GREAT NORTHERN

* All Mallets come with Vanderbilt tender and 3-axle commonwealth trucks.

2-8-0 CONSOLIDATION

1/29 SCALE

G 45 mm

2-8-0 CONSOLIDATION ROADNAMES:
20601 2-8-0 B&O
20602 2-8-0 WESTERN MARYLAND
20603 2-8-0 ATSF
20604 2-8-0 UNION PACIFIC
20605 2-8-0 NEW HAVEN
20606 2-8-0 C&NW
20607 2-8-0 GREAT NORTHERN
20608 2-8-0 NEW YORK CENTRAL
20609 2-8-0 USATC
20610 2-8-0 CNR
20611 2-8-0 PRR
20612 2-8-0 SOUTHERN PACIFIC
20613 2-8-0 CNJ
20614 2-8-0 SOUTHERN RR

ARISTO-CRAFT'S BIG STEAM LOCOMOTIVES

If you're looking for BIG steam locomotives for your large-scale model railroad, then Aristo-Craft Trains has the BEST for you. Powerhouse performers like the Aristo-Craft ART21400 PACIFIC 4-6-2 and ART21600 MALLET 2-8-8-2 are railroad classics with superb attention to detail and all the outstanding quality you expect from Aristo-Craft products. And now, we have the new ART20600 2-8-0 CONSOLIDATION, our most highly anticipated loco to date, with top-notch craftsmanship and pulling power. Visit your local retailer or go to www.aristocraft.com for more details today!

Come see the video @ LSOL.com/aristocraft

ARISTO-CRAFT TRAINS
698 S. 21st Street, Irvington, NJ 07111-4109
Phone: 973-351-9800 Fax: 973-351-9700
Visit us online at http://www.aristocraft.com